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ABSTRACT

The objective of the unified database (UDB) program was to develop an automated information system that would be useful in the design, development, testing, and support of new Air Force aircraft weapon systems. Primary emphasis was on the development of: (1) a historical logistics data repository system to provide convenient and timely access to relevant information about existing aircraft weapon systems; (2) a fully automated logistics support analysis record system that would satisfy current Air Force and Department of Defense requirements; and (3) an overall UDB system to function as a closed-loop system for use throughout the life of a weapon system. This report summarizes the accomplishments of the UDB program and major UDB system features and capabilities. Report sections describe project background; the UDB concept and objectives; the Automated Logistics Support Analysis Record (ALSAR) system, which has been fully developed and partially tested using HH-60 helicopter data; the current development status of the prototype Aircraft Characteristics Data File (ACDF), which will contain historical data on aircraft weapon systems; related studies of the Air Force Operational Test and Evaluation Center (AFOTEC) requirements for a new weapon system and of combat data sources; and conclusions and recommendations for future UDB development. A four-item bibliography, a list of abbreviations, and sample ALSAR data sheets and ACDF online data screens are also provided. (Author/ESR)

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AIR FORCE HUMAN RESOURCES LABORATORY

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UNIFIED DATABASE DEVELOPMENT PROGRAM

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March 1984

Final Report

Approved for public release; distribution unlimited.

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The objective of the unified database (UDB) program was to develop an automated system that would be useful to those responsible for the design, development, testing, and support a new Air Force aircraft weapon system. Primary emphasis was on (a) development of an historical logistics data repository system to provide convenient and timely access to relevant information about existing aircraft weapon systems, (b) development of a fully automated logistics support analysis record system that would satisfy current Air Force and Department of Defense requirements, and (c) develop the overall UDB system to function as a closed-loop system for use throughout the life of a weapon system. This report summarizes the accomplishments of the UDB program to date and describes the major features and capabilities of the UDB system.

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SUMMARY

Objectives

The objectives were to provide a logistics database structure that permits practical use of historical and current logistics information. The structure was to be tested for its use in facilitating the influence of logistics factors upon weapon system design.

Background

The Air Force is concerned with the lack of adequate logistics consideration during the weapon system design process. To produce a weapon system with optimal cost and mission effectiveness, logistics factors must be considered very early and throughout the system design and acquisition process. Recent DoD Standards and Instructions have indicated a strong commitment to consider logistics as an integral part of the weapon system design activity.

The logistics information system available to the designer and logistician must be adequate. Yet, for many years large amounts of logistics information and data have been collected and processed on many different weapon systems, but this was done mainly to improve the capability of existing weapon systems and the information systems were structured to support that end. The existing logistics systems do not provide timely responses to requests for information or data, there is no traceability to the data origin, and in many instances the data are neither consistent nor accurate to the degree that is required to support weapon system design. The Unified Data Base (UDB) program was formulated to address these issues.

Approach

The UDB development program was conducted in three phases. In the first phase, the detailed definitions, specifications, standards, formats, and computer flow charting were addressed and completed. In accordance with published DoD guidance, the UDB elements were based on Military Standard (MIL-STD) 1388-2. Additional elements were added to allow for the feedback of historical operational logistics information and to address additional data needs associated with common logistics support analysis techniques. The UDB was programmed for computer application during the second phase. The third phase consisted of the demonstration, testing, and further de-bugging of the UDB using two acquisition programs as test vehicles.

Specifics

This UDB development program continued building on the results of a previous program that established the need for additional data elements beyond those outlined in MIL-STD-1388-2 and on the results of the Tri-Services Logistics Support Analysis Record (LSAR) Working Group (which continuously reviews the logistics data needs and requirements of all the Services). Specifically, the automated LSAR requirements and the various logistics-related Contract Definition Requirements List (CDRL) items associated with the C-X procurement activity were closely reviewed.

The UDB can be accessed via computer terminals, by punched card input, or by high speed printers (batch processes). About 70 different computer terminal formats (screens) were designed to permit very efficient and timely input, update, access, deletion, etc. of logistics information for any weapon system program. Large amounts of data input, standard output reports, summarizations, and CDRL items are best handled via batch processes. Ample subsets of the data can be safeguarded from unauthorized updating, inputting, deleting, reading, etc. Audit trails are maintained as to who input, read, updated, etc. the information and when and where it occurred.

The UDB was tested and demonstrated using the HH-60 helicopter and the B-1B aircraft acquisition programs. The historical-information side of the UDB was demonstrated on the HH-60 using previous[illegible]nerated data from the Army. Some standard summary reports were generated by the UDB from this data. No potentia[illegible]-60 problem areas were discovered. The current logistics information side of the UDB is being demonstrated on the B-1B program. B-1B defensive avionics maintenance and training information for the operational, intermediate, and depot levels of maintenance are being entered into the UDB. The training and technical-manual functional areas retrieved this information via terminals from the UDB so that critical concerns could be relayed immediately to design for appropriate design consideration.

Conclusions and Recommendations

The objectives were attained. A logistics database structure, the UDB, was developed. Its practicality was demonstrated by using historical information on the HH-60 program and current information on the B-1B program. As a result of this UDB effort, both historical and current logistics information can now have more influence on the design of weapons systems.

It is recommended that the UDB be further expanded to incorporate more efficiently the Air Force Operational Test and Evaluation Center (AFOTEC) results into the UDB and, thereby, into the design activity. This expansion should build on the initial work by a contractor to outline the mapping between AFOTEC data and UDB data and to identify additional AFOTEC data needs that the UDB does not currently address. The UDB should also be expanded to interface more efficiently with computer-aided design (CAD) activities that are themselves becoming so predominate throughout the aerospace industry. Commonality of data elements between UDB and CAD databases should be identified, and processes to further introduce logistics factors into the CAD design activities should be defined.

PREFACE

This work was initiated by the Logistics and Human Factors Division, Air Force Human Resources Laboratory, Wright-Patterson Air Force Base, Ohio, under Project 1710, Weapon Systems Logistics and Combat Maintenance, Lt. Col. Joseph A. Birt, Project Scientist. Project 1710 addresses the planning, developing and managing of logistics support of Air Force Logistics and Combat Operations. The Work Unit was 1710-00-20, Unified Database for Weapons Systems Design. Work Unit 1710-00-20 develops logistics among logistics resources, systems design, and operational procedures.

Appreciation is extended to Dr. William B. Askren and to Mr. Russell M. Genet for their guidance and direction throughout this effort. Appreciation is also extended to the many individuals of the Air Force Logistics Command, Air Force Acquisition Logistics Division, and the Air Force Operational Test and Evaluation Center without whose assistance this work would not have been possible.

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TABLE OF CONTENTS

Page

SECTION I
- BACKGROUND 1
- POLICY 1
  - DIRECTIVES 1
  - MILITARY STANDARD (MIL-STD) 1388 1
  - PRODUCT PERFORMANCE FEEDBACK SYSTEM (PPFS) 2
- UNIFIED DATABASE TECHNOLOGY 3
  - DEFINITION STUDY 3
  - UDB DEVELOPMENT 3

SECTION II
- UDB CONCEPT 4
- GENERAL 4
  - PURPOSE 4
  - OBJECTIVES 4
- CONCEPTUAL APPROACH 5
  - CLOSED-LOOP SYSTEM 5
  - Objective 1 5
  - Objective 2 5
  - Objective 3 7
  - Objective 4 8
  - Objective 5 8
  - Objective 6 9
  - Objective 7 9
  - Objective 8 10
  - Objective 4' 11
  - Objective 7' 11
- PROTOTYPE UDB APPROACH 12
- INITIAL PLAN 13
- UDB FEATURES 13
  - Objective 1 13
  - Objective 2 13
  - Objective 3 15
  - Objective 4-7 15
  - Objective 8 15

SECTION III
- AUTOMATED LSAR SYSTEM 16
- OVERVIEW 16
  - BASELINE 16
  - DOCUMENTATION 16
  - Data Sheets 17
  - Data Entry Instructions 18
  - ALSAR Users Guide 19
  - Access and Security Manual 19
  - Maintenance and Update Manual 19

TABLE OF CONTENTS

Page

  SYSTEM DESIGN.. 19
GENERAL FEATURES... 21
  LSA CONTROL NUMBER (LSACN)............................. 21
  PERFORMANCE TRACKING................................... 21
  Additional Data Elements............................... 21
  Task Codes... 23
  How Malfunction Codes and Work Center.................. 23
  Maintenance Events/Maintenance Actions................. 23
ALTERNATE ACTION... 24
  LSAR REVISIONS... 24
  EFFICIENT DATA ENTRY................................... 25
  Key Parameters... 25
  Header Information..................................... 25
  Multiple Applications.................................. 26
  NARRATIVE DATA... 26
ON-LINE PROCESSING....................................... 27
  MENU SCREENS... 27
  DATA ENTRY SCREENS..................................... 28
  ENTERING DATA.. 29
  EDIT CHECKS.. 29
  DATA RETRIEVAL... 30
  DATA UPDATE.. 30
  GLOBAL CHANGE CAPABILITY............................... 31
  GENERIC COPY CAPABILITY................................ 31
  MAINTENANCE AND SUPPLY SUPPORT FILES................... 31
BATCH-PROCESSING... 32
  INITIAL BATCH LOAD..................................... 32
  Phase 1.. 33
  Phase 2.. 33
  Phase 3.. 33
  SUSPENSE REPORT.. 34
  TURNAROUND DOCUMENTS................................... 34
  PROMPTING DOCUMENTS.................................... 35
  LSA/LSAR PROGRESS REPORTS.............................. 38
  LSACN Status Report.................................... 38
  Data Sheet Status...................................... 38
REPORTING SYSTEM... 39
  DARCOM LSA REPORTS..................................... 39
  DATA ITEM DESCRIPTIONS (DID)........................... 40
  REPORT SELECTION SCREENS............................... 40
  TAPE OUTPUTS... 42
  REPORT REQUEST SUMMARY................................. 42

TABLE OF CONTENTS

Page

SECTION IV AIRCRAFT CHARACTERISTICS DATA FILE 44
GENERAL 44
  PURPOSE AND USE 44
  Conceptual Phase 44
  Preliminary and Detailed Design Phases 45
  O&S Phase 45
  Research and Development (R&D) Activities 45
  TECHNICAL APPROACH 45
  MODES OF OPERATION 46
    Data Entry 46
    Data Retrieval 46
  DOCUMENTATION 46
  ACDF DED 47
  Data Input Record Layouts 47
  Users Guide 47
  Programming Documentation 49
ACDF RECORD CONTENTS 49
  AIRCRAFT RECORD 49
  MISSION RECORD 50
  BASIC MISSION PERFORMANCE RECORD 50
  SYSTEM DESIGN AND PERFORMANCE RECORD 50
  ENGINE RECORD 50
  SYSTEM UTILIZATION RECORD 50
  SYSTEM FEATURES RECORD 50
  AVIONICS SYSTEMS RECORD 51
  SYSTEM R&M COST RECORD 51
  OPERATIONAL SUPPORT AND COST RECORD 51
  Aircraft Level/AFR 800-18 Format 4 51
  Work Center by Aircraft 51
  Support Cost by WUC 52
  R&M Data by WUC 52
  Maintenance Action by WUC 52
  NATIONAL STOCK NUMBER RECORD 52
  SUBSYSTEM RECORDS 53
ON-LINE SYSTEM 53
  RECORD COMMANDS 54
  QUERY COMMANDS 55
  LAC Command 55
  LAV Command 55
  LDE Command 56
  LEN Command 56
  SEL List Command 56
  AVS Versus Equipment 57
  Engine Data 58
  National Stock Number Data 58
  ON-LINE CRT SCREENS 58
  HARD COPY DATA 58

TABLE OF CONTENTS

Page

SECTION V AFOTEC AND COMBAT DATA 59
GENERAL 59
OT&E REQUIREMENTS 59
  OBJECTIVES AND APPROACH 59
  AFOTEC INPUTS AND OUTPUTS 59
  UDB CAPABILITY 60
  OT&E RESULTS 60
COMBAT REQUIREMENTS 61
  OBJECTIVES AND APPROACH 61
  SUMMARY OF RESULTS 61

SECTION VI CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE DEVELOPMENT 62
CONCLUSIONS 62
FUTURE RESEARCH AND DEVELOPMENT 62
  ALSAR 63
    Production Support and Software Maintenance 63
    Redesign to Support MIL-STD-1388-2A 63
    Transportability 63
    Word-Processing Capability 64
    Functional Users Guide 64
  ACDF 64
    Load Data 64
    Interface Programs 65
    Trend Data Graphics 65
  OT&E INTERFACE 65
  INSTALL AND DEMONSTRATE UDB 65
  COMPUTER-AIDED DESIGN (CAD) 65

REFERENCES 67

ABBREVIATIONS 68

APPENDIXES
A ALSAR DATA SHEETS 71
B ACDF ON-LINE DATA SCREENS 89

LIST OF FIGURES

FIGURE 1 UDB IN WEAPON SYSTEM LIFE CYCLE 6
2 TOTAL AIRCRAFT WEAPON SYSTEM 12
3 PROTOTYPE UDB FEATURES 14
4 DATA SHEET MENU SCREEN 18
5 ALSAR SYSTEM DESIGN 20
6 A-SHEET MENU SCREEN 27
7 A-SHEET ON-LINE SCREEN 28
8 B-SHEET ON-LINE SCREEN 28
9 E-SHEET ON-LINE SCREEN 29
10 GENERATION OF PROMPTING DOCUMENTS 36
11 USE OF PROMPTING DOCUMENTS 37
12 DATA SHEET STATUS 39
13 ALSAR REPORT MENU SCREEN 41
14 CMRS REPORT SELECTION SCREEN 41
15 MOD-METRIC TAPE SELECTION SCREEN 43
16 NRLA TAPE SELECTION SCREEN 43
17 SAMPLE ACDF DATA INPUT RECORD LAYOUTS 48
18 FUNCTIONAL DISPLAY OF ACDF DATABASE 54
19 ACDF RECORD SELECTION DISPLAY SCREEN 55

LIST OF TABLES

TABLE 1 ALSAR DOCUMENTATION 17
2 ALSAR PERFORMANCE TRACKING 22
3 ALSAR OUTPUT REPORTS 40
4 ACDF DOCUMENTATION 47
5 ACDF RECORDS FOR EACH AIRCRAFT MDS 49
6 SYSTEM FEATURES RECORD 57
7 AFOTEC SYSTEMS USED 60

SECTION I

BACKGROUND

POLICY

DIRECTIVES

The need for improved weapon system availability, supportability, and overall cost-effectiveness has been a continuing concern of the Department of Defense (DOD). DOD Directive (DODD) 5000.39, "Acquisition and Management of Integrated Logistics Support for Systems and Equipment," establishes important policy addressing this need. It defines management and technical activities to be accomplished throughout the weapon system acquisition process with emphasis on Integrated Logistics Support (ILS) and Logistics Support Analysis (LSA). Specifically, DODD 5000.39 stresses the need (a) to effectively utilize information about existing operational equipment to establish a Baseline Comparison System (BCS), (b) to integrate LSA activity into the overall system design process, (c) to establish and maintain a common, consistent Logistics Support Analysis Record (LSAR) used to support both ILS and Reliability and Maintainability (R&M) development efforts, and (d) to verify the LSAR during operational service of the weapon system.

MILITARY STANDARD (MIL-STD) 1388

Military Standard (MIL-STD) 1388 describes the LSA tasks to be accomplished during a system acquisition program to satisfy the objectives of DODD 5000.39. In addition, MIL-STD-1388 defines the LSAR needed to document the results of LSA. In 1973 the Army Development and Readiness Command (DARCOM) developed the LSAR Automated Data Processing (ADP) system to implement MIL-STD-1388. DARCOM Pamphlet 750-16 (DARCOM, 1979) is the governing document for the system.

Lack of LSA/LSAR standardization between service acquisition efforts led to the formation of a Joint Service LSA Working Group in November 1978. The working group's efforts were specifically directed toward standardization of the LSAR input data sheets and data element definitions. In June 1981, the working group effort resulted in a draft revision of MIL-STD-1388. In December 1981, the DARCOM Materiel Readiness Support Activity (MRSA) was assigned to DOD LSA Support Activity mission. This mission included the requirements to develop a MIL-STD on LSA documentation and a standard DOD LSAR ADP system. As a result, in June 1982, a draft MIL-STD-1388-2A was developed. A revised draft (MIL-STD-1388-2A, 1983) was carefully reviewed by industry representatives, and the approved version is expected to be published in May 1984.

Concurrent with development of MIL-STD-1388-2A, MRSA has been developing a DOD LSAR ADP system. At present, the concept for this system, written in American National Standard Institute (ANSI) COBOL, is for batch processing of input data resulting in sequential master files. The difference between the DOD LSAR ADP system and the DARCOM 750-16 ADP system is that the DOD system will accept all inputs at a single entry point, relieving the functional user from having to know which one of the five DARCOM ADP system programs to use for a given input.

PRODUCT PERFORMANCE FEEDBACK SYSTEM (PPFS)

On 27 September 1979, the Air Force issued Program Management Directive (PMD) L-Y9094(1) directing the definition and development of a Product Performance Feedback System (PPFS). The primary objective of the PPFS is to provide an historical data repository of design-related information about operational systems for use by system designers, analysts, and support planners involved in new weapon system and equipment acquisition programs. The PPFS will be automated to provide convenient and timely access to relevant design, reliability and maintainability (R&M) and support cost data to establish initially a baseline comparison system (BCS) for the new weapon system being developed. Once the new weapon system becomes operational, the PPFS will provide performance data feedback to those responsible for operation and support (O&S) throughout its life cycle.

UNIFIED DATABASE TECHNOLOGY

DEFINITION STUDY

During 1978-1979, the Logistics and Human Factors Division of the Air Force Human Resources Laboratory (AFHRL) conducted a study to define the requirements and establish a plan for development of an integrated system that would assist in satisfying the requirements and objectives stated in DODD 5000.39. This work by Thomas and Hankins (1979) and Thomas, Hankins and Newhouse (1980) resulted in a concept and development approach for the Unified Database (UDB) system. As conceived, the UDB addressed the requirements of DODD 5000.39, MIL-STD-1388, PPFS, and the specific Air Force requirements associated with ILS throughout the weapon system acquisition process.

UDB DEVELOPMENT

In January 1980 AFHRL began a three-phased effort to develop a prototype UDB system, with each phase lasting approximately 1 year. The objective of Phase I was to accomplish detailed definition and system level design of the UDB. The objective of Phase II was to develop the UDB. The objective of Phase III was to test and demonstrate the UDB. This UDB development effort was completed in March 1983. This report provides an overview of the UDB concept and summarizes the results of the development effort.

SECTION II

UDB CONCEPT

GENERAL

In this section the overall concept of the UDB is presented. It was necessary to have a global perspective of the UDB concept to insure that the "building blocks" were developed consistent with the overall objectives. The UDB development status will be covered in later sections of this report.

PURPOSE

The purpose of the UDB is to assist government and industry organizations in accomplishing the objectives of DODD 5000.39, MIL-STD-1388, current ILS reporting requirements typically imposed on Air Force acquisition programs, and PPFS.

OBJECTIVES

The primary objective of the UDB program is to develop an integrated system that will provide mechanisms (a) to establish and maintain an historical data repository of relevant information about operational weapon systems, (b) to enable convenient and timely access to the historical data repository and provide information in a useful form and content, (c) to assist in establishing a BCS for use in trade-off studies, analyses, and predictions about the new weapon system under development, (d) to assist in developing, managing, and utilizing a common LSAR throughout the acquisition process, (e) to provide convenient interfaces between LSAR and standard analytical models for predictive and planning purposes, (f) to update the LSAR with measured values during the Operational Test and Evaluation (OT&E) phase, (g) to validate the LSAR using operational field data during the O&S phase, and (h) to utilize the UDB as a means for product performance measurement and feedback.

CONCEPTUAL APPROACH

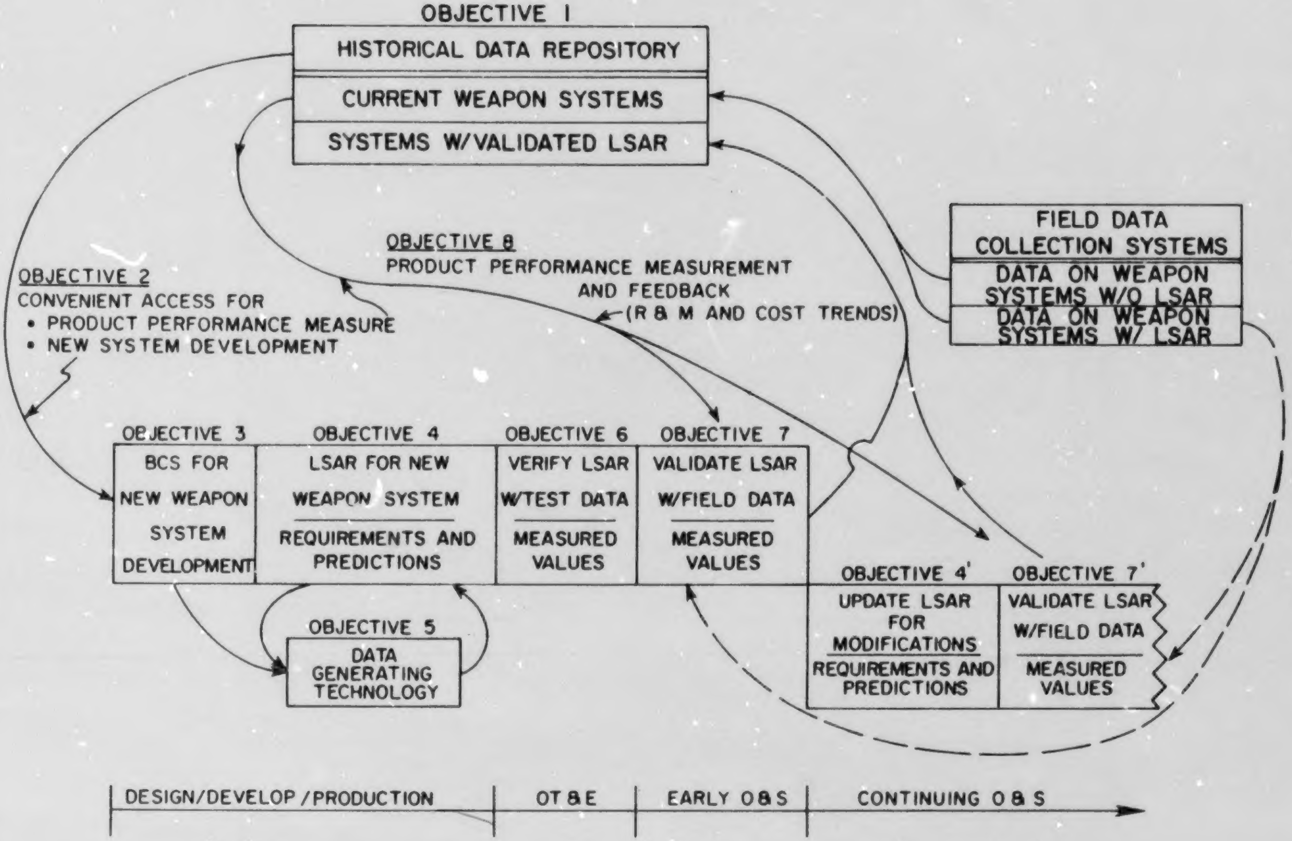
CLOSED-LOOP SYSTEM

In order to satisfy the UDB objectives optimally, a closed-loop system is needed to insure consistency and compatibility. Figure 1 shows the closed-loop nature of the UDB in terms of its objectives and the time-phased activities of the weapon system acquisition process.

Objective 1 - It was concluded early in this program (Thomas et al., 1980) that the Air Force should establish and maintain a central Historical Data Repository (HDR) for each major product category such as aircraft, missiles, and ground electronics. The HDR will contain design, R&M, and support cost information about operational weapon systems and equipment. In the future, as weapon systems are developed using the UDB concept, the HDR would contain validated LSAR for these systems.

The design data in the HDR for a given weapon system configuration would remain constant, while the R&M and support cost data would be periodically updated using existing field data collection systems such as the Maintenance Data Collection System (MDCS), Air Force Logistics Command (AFLC) DO-56 systems, and the Visibility and Management of Operational Support Cost (VAMOSC) system. If and when modifications to a current weapon system are made, the design data in the HDR will be changed to reflect the modification, and the corresponding R&M and support cost data in the HDR may be correlated to the modified design configuration. In this regard, maintenance of the HDR will be relatively difficult until such time that operational weapon systems populating the HDR are developed using the UDB concept, and therefore have an active LSAR. (This point will be discussed later under Objective 4.)

Objective 2 - The automated HDR will process input data, as appropriate, to create output information in the form and content desired by users. Information in the HDR will be stored on disk or on tape, as appropriate. Regardless of the data storage mechanism, the HDR will provide users


OBJECTIVE 1
HISTORICAL DATA REPOSITORY
CURRENT WEAPON SYSTEMS
SYSTEMS W/VALIDATED LSAR
FIELD DATA COLLECTION SYSTEMS
DATA ON WEAPON SYSTEMS W/O LSAR
DATA ON WEAPON SYSTEMS W/ LSAR
OBJECTIVE 8
PRODUCT PERFORMANCE MEASUREMENT AND FEEDBACK
(R & M AND COST TRENDS)
OBJECTIVE 2
CONVENIENT ACCESS FOR
• PRODUCT PERFORMANCE MEASURE
• NEW SYSTEM DEVELOPMENT
OBJECTIVE 3
BCS FOR NEW WEAPON SYSTEM DEVELOPMENT
OBJECTIVE 4
LSAR FOR NEW WEAPON SYSTEM
REQUIREMENTS AND PREDICTIONS
OBJECTIVE 6
VERIFY LSAR W/TEST DATA
MEASURED VALUES
OBJECTIVE 7
VALIDATE LSAR W/FIELD DATA
MEASURED VALUES
OBJECTIVE 4'
UPDATE LSAR FOR MODIFICATIONS
REQUIREMENTS AND PREDICTIONS
OBJECTIVE 7'
VALIDATE LSAR W/FIELD DATA
MEASURED VALUES
OBJECTIVE 5
DATA GENERATING TECHNOLOGY
DESIGN/DEVELOP/PRODUCTION
OT & E
EARLY O & S
CONTINUING O & S

UDB IN WEAPON SYSTEM LIFE CYCLE

FIGURE I

convenient and timely access to selected information via remote on-line cathode ray tube (CRT) terminals.

In the weapon system acquisition and support environment, convenient and timely access to relevant data is extremely important. If this capability is missing, the utility and cost-effectiveness of the HDR is severely compromised. There is simply little value in having an HDR loaded with valid and useful information if users cannot get it when they need it.

Objective 3 - The community of organizations involved with new weapon system acquisition programs would use the HDR to identify the BCS for the new weapon system under development. The BCS would be either a currently operational weapon system, or a composite system composed of equipment from two or more currently operational systems. Once the BCS is identified based on design characteristics, users would selectively retrieve R&M and support cost information from the HDR to serve as baseline of departure for the new weapon system.

The BCS would first be established at the top system level, then at the major subsystem levels, and finally at the component levels, as appropriate. A most convenient and useful feature would be to enable users to retrieve selected BCS information from the HDR in LSAR format for each desired level of indenture. Establishing the BCS in LSAR format would greatly assist the government in establishing system level availability and R&M requirements. It would be enormously helpful to industry for allocating system level requirements to major subsystems and lower indenture levels. Finally, it would greatly reduce the time and cost required to accomplish trade studies and analyses for obtaining predictions at all levels in the LSA/LSAR process. In addition to achieving substantial time and cost savings, such a BCS capability would greatly enhance the effectiveness of the ILS activity throughout the system acquisition process.

Achieving the capability to transform field data into comparable LSAR data, and vice-versa, is the key to creating a truly closed-loop UDB system. This capability will be totally achieved only if a mechanism is developed to resolve the basic incompatibilities between field data collection systems and the LSA/LSAR system requirements. The UDB achieves this by a set of transformation tables.

Objective 4 - When the user retrieves the BCS information on tape from the HDR in LSAR form and content, the automated LSAR (ALSAR) system of the UDB will enable the user to load the BCS. The BCS would be used to support the LSA activity for the new weapon system development program. The results of the LSA would be recorded in the LSAR for the new weapon system. The ALSAR will provide a cross-reference between the BCS and the new weapon system LSAR at each level of indenture, as applicable. This feature provides a convenient audit trail for future use.

Since the detailed LSA/LSAR must be accomplished by industry, the ALSAR will provide on-line and batch features to enhance systems engineering integration throughout the design, development, and production phases of the new weapon system acquisition process. The LSA/LSAR would be accomplished at the system and major subsystem levels early in the design/development process. As the preliminary and detailed design is expanded to lower indenture levels, the LSA/LSAR expands accordingly.

The ALSAR provides the mechanism to create, manage, and utilize a common, consistent LSAR database for the new weapon system to the lowest reparable level, and for all ILS elements. The ALSAR will machine generate standard output reports that satisfy most of the ILS related requirements associated with new weapon system acquisition programs. This automated feature will result in significant cost savings in report preparation and will enhance consistency and cost-effectiveness in planning and developing the required ILS elements.

It is envisioned that all required, allocated, and predicted values for the new weapon system LSAR would be recorded in the ALSAR by the end of the full-scale development phase. To be sure, however, the ALSAR would continue to be used throughout the production phase to reflect design modifications and assist in the development of ILS elements. Furthermore, the ALSAR would continue to be used during OT&E and O&S, but this will be discussed later.

Objective 5 - Standard models are available to assist in accomplishing LSA during the design and development of new weapon systems. The Network Repair Level Analysis (NRLA) Model and the Logistics Composite Model (LCOM) are examples of these important tools. The UDB should be designed to provide an interface mechanism between ALSAR and these standard models.

In Figure 1 this capability is shown as Data Generating Technology. While the current UDB has addressed this area, there is tremendous potential for future development to improve and enhance this capability. An important example is the interface between the HDR and ALSAR with computer-aided design and computer-aided manufacturing (CAD/CAM).

Objective 6 - The ALSAR will provide the capability to record allocated, predicted, and measured values for parameters required to determine the operational suitability and effectiveness of the new weapon system. Prior to OT&E the ALSAR will contain allocated and predicted values for the new weapon system LSAR. When the weapon system moves into the OT&E phase, measured values based on test results may be entered using the on-line or batch system of the ALSAR.

This ALSAR feature will enable the government and contractors to compare requirements, allocations, predictions, and measured results in a consistent and directly comparable manner. To the extent desired and applicable, comparison with the BCS could also be achieved. This capability will permit early identification of specific problem areas and permit problem resolution on a management-by-exception basis. This process will permit early verification of LSAR in areas where no problem areas exist.

Objective 7 - During the early O&S phase the existing field data collection and reporting systems (MDCS, D056, VAMOSC) will be used to validate the new weapon system LSAR. On the right side of Figure 1, a dashed-arrow is shown that implies that measured values for validation of the new weapon system LSAR are provided directly from the Field Data Collection Systems. Although this is not totally possible due to the incompatibility between the LSAR and the field data systems, as was mentioned in the discussion of the BCS under Objective 3 above, the UDB Transformation Tables make it possible to some degree.

At the beginning of the new weapon system program a BCS will be created and loaded into the ALSAR. When this new weapon system eventually moves into the early O&S phase, the UDB Transformation Tables will be used to process the field data collected on the newly fielded weapon system. Instead of creating a BCS, however, the output at this point will reflect measured values for appropriate LSAR parameters of the newly fielded weapon system. When this output is loaded into the ALSAR, the measured values derived from field data may be used to validate the LSAR for the newly fielded weapon system.

When the newly fielded weapon system LSAR is validated, this LSAR record will be loaded in the HDR for use by future weapon system development programs. This is shown in Figure 1 by the arrow leading from the validated LSAR (Objective 7) to the block in the HDR titled "Systems with Validated LSAR." Selected portions of the LSAR may be stored on disk, while other portions may be stored on magnetic tape. When this newly fielded weapon system, or any portion thereof, is used as the BCS for a future weapon system, a complete and validated LSAR will be available for the BCS. As the HDR is increasingly populated with weapon systems for which a Validated LSAR is available, the full potential value of the closed-loop UDB system will be realized.

Objective 8 - Another important function of the automated HDR will be to provide trend data for selected R&M and support cost parameters. This is shown in Figure 1 as product performance measurement and feedback to those responsible for continuing development (modifications), operation and support of a weapon system.

Again, the capability to accomplish this function totally will be dependent on the mechanisms discussed earlier to create the BCS and validate the LSAR for a new weapon system. As shown in Figure 1, the Field Data Collection Systems would supply information for currently operational systems; both those with and without the LSAR. The UDB would process these field data and calculate and capture trend data as a function of selected LSAR parameters over time/utilization. These trend data would be available to users via on-line command and displayed on CRT terminal screens or hard copy printout as shown by Objective 8 in Figure 1.

The rationale for utilizing the same mechanisms to create the BCS, validate the new weapon system LSAR, and supply trend data for the new weapon system during the O&S phase is straightforward. The R&M and support cost parameters of interest should and do remain applicable throughout the life cycle of a weapon system. In the beginning the baseline values are established, followed by requirements and allocated values. Next the predicted values are established during design, development, and production. In the OT&E phase, test results produce measured values to verify the predictions and identify problem areas. Finally, the field data collected in the O&S phase supplies measured values to validate the parameters of interest. These validated parameter values are then stored in the HDR and used as the BCS for future weapon system acquisition programs, as applicable. Using the same mechanisms to accomplish these functions is both practical and necessary to facilitate a consistent, compatible closed-loop UDB system.

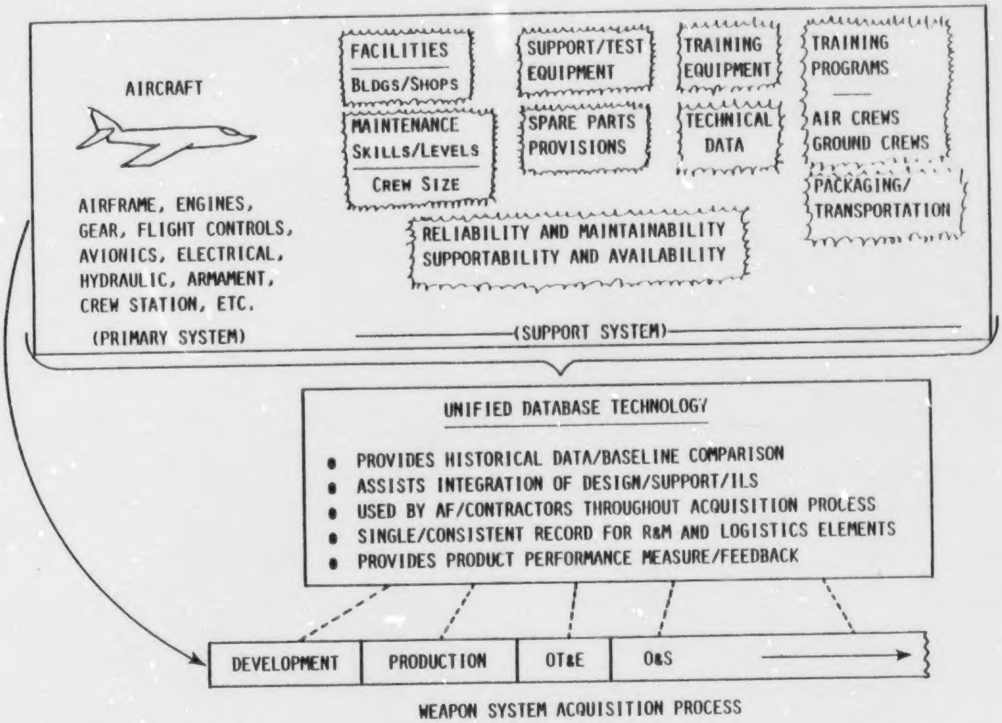
Objective 4' - A vitally important concept of the UDB is that the LSAR for a given weapon system will be maintained throughout its life cycle. During the design, development, and production phases, the ALSAR captures design information as part of the overall LSAR for a new weapon system. As the weapon system moves into OT&E and O&S, the measured values are used to verify and validate the LSAR as a function of its design characteristics, concept of employment, and concept of maintenance.

Figure 1 shows that those responsible for developing and supporting a new weapon system would continue to utilize the ALSAR to maintain the new weapon system LSAR throughout the O&S phase. During OT&E and/or early O&S, design-related problems may be identified that require modifications to the weapon system. When this occurs, LSA will be reaccomplished, as appropriate, and the LSAR will be updated to reflect the modified design configuration. Similarly, if and when changes to the operational and/or maintenance concepts for the weapon system are eminent, the LSA/LSAR will be updated to reflect these changes whether or not design modifications were also made.

Objective 7' - After modifications are incorporated in the weapon system, the ALSAR will again be used in conjunction with the HDR to validate the updated LSAR. This step would also be accomplished if only a change to the operational and/or maintenance concept was made. Once validated, the modified LSAR would be stored in the HDR for use on future programs. Trend data on R&M and support cost parameters would be provided for the modified weapon system on a continuing basis, as appropriate.

PROTOTYPE UDB APPROACH

Conceptually, the UDB could be used to support many types of DOD weapon systems and equipment. The UDB development effort was limited to Air Force requirements for aircraft weapon systems. Figure 2 portrays a total aircraft weapon system and how the UDB would be used by the Air Force and contractors throughout the acquisition process.


AIRCRAFT
AIRFRAME, ENGINES, GEAR, FLIGHT CONTROLS, AVIONICS, ELECTRICAL, HYDRAULIC, ARMAMENT, CREW STATION, ETC.
(PRIMARY SYSTEM)
FACILITIES
BLDGS/SHOPS
SUPPORT/TEST EQUIPMENT
TRAINING EQUIPMENT
TRAINING PROGRAMS
AIR CREWS
GROUND CREWS
MAINTENANCE SKILLS/LEVELS
CREW SIZE
SPARE PARTS PROVISIONS
TECHNICAL DATA
PACKAGING/ TRANSPORTATION
RELIABILITY AND MAINTAINABILITY
SUPPORTABILITY AND AVAILABILITY
(SUPPORT SYSTEM)
UNIFIED DATABASE TECHNOLOGY
PROVIDES HISTORICAL DATA/BASELINE COMPARISON
ASSISTS INTEGRATION OF DESIGN/SUPPORT/ILS
USED BY AF/CONTRACTORS THROUGHOUT ACQUISITION PROCESS
SINGLE/CONSISTENT RECORD FOR R&M AND LOGISTICS ELEMENTS
PROVIDES PRODUCT PERFORMANCE MEASURE/FEEDBACK
DEVELOPMENT
PRODUCTION
OT&E
O&S
WEAPON SYSTEM ACQUISITION PROCESS

TOTAL AIRCRAFT WEAPON SYSTEM

FIGURE 2

INITIAL PLAN

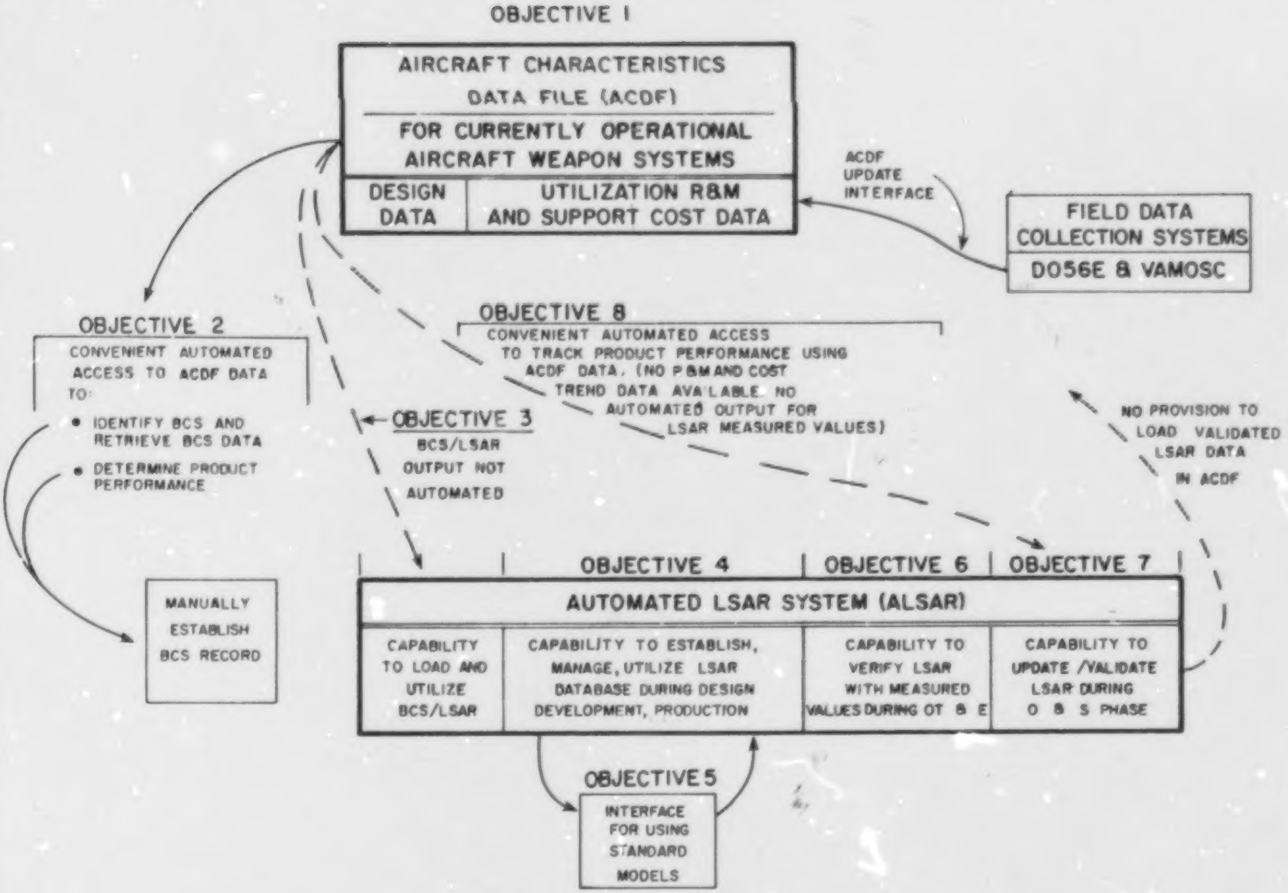
As discussed earlier, the ALSAR and HDR are the most important features of the closed-loop UDB concept. Given these features, the data generating technology would then be extremely useful in accomplishing LSA. The initial plan for the UDB effort was to focus primary attention on the HDR and data generating technology, and to use the DARCOM ADP/LSAR system to satisfy the requirements of ALSAR. A detailed study of the DARCOM system, however, revealed that it could not accommodate the UDB objectives for the ALSAR. Because the ALSAR is vitally important to the viability and utility of the overall UDB, primary emphasis was shifted to development of this fully automated LSAR system, with secondary emphasis on the HDR.

UDB FEATURES

Figure 3 shows in bold-lined boxes the two major features of the UDB system; the ALSAR and the Aircraft Characteristics Data File (ACDF). These features were developed so as to be consistent and compatible with the UDB system objectives discussed earlier in Figure 1 and shown in Figure 3. A discussion follows as to the degree to which these objectives were satisfied in the UDB development effort.

Objective 1 - The ACDF represents the HDR for currently operational aircraft weapon systems. For each mission, design, and series (MDS), the ACDF will contain design characteristics data and processed field data pertaining to utilization, R&M, and support cost parameters. Initial programs have been developed to process data from DO56E and VAMOSC to update the ACDF.

Objective 2 - The automated ACDF provides convenient and selective access to data via remote on-line CRT terminal screens. This capability will assist users in determining the BCS for a new weapon system and selectively retrieving BCS information. Using the same capability, users may retrieve information from the ACDF to assist in determining the performance of products in terms of R&M and support cost parameters.


OBJECTIVE 1
AIRCRAFT CHARACTERISTICS DATA FILE (ACDF)
FOR CURRENTLY OPERATIONAL AIRCRAFT WEAPON SYSTEMS
DESIGN DATA
UTILIZATION R&M AND SUPPORT COST DATA
ACDF UPDATE INTERFACE
FIELD DATA COLLECTION SYSTEMS
D056E & VAMOSC
OBJECTIVE 2
CONVENIENT AUTOMATED ACCESS TO ACDF DATA TO:
• IDENTIFY BCS AND RETRIEVE BCS DATA
• DETERMINE PRODUCT PERFORMANCE
OBJECTIVE 8
CONVENIENT AUTOMATED ACCESS TO TRACK PRODUCT PERFORMANCE USING ACDF DATA. (NO R&M AND COST TREND DATA AVAILABLE. NO AUTOMATED OUTPUT FOR LSAR MEASURED VALUES)
OBJECTIVE 3
BCS/LSAR OUTPUT NOT AUTOMATED
NO PROVISION TO LOAD VALIDATED LSAR DATA IN ACDF
MANUALLY ESTABLISH BCS RECORD
OBJECTIVE 4
OBJECTIVE 6
OBJECTIVE 7
AUTOMATED LSAR SYSTEM (ALSAR)
CAPABILITY TO LOAD AND UTILIZE BCS/LSAR
CAPABILITY TO ESTABLISH, MANAGE, UTILIZE LSAR DATABASE DURING DESIGN DEVELOPMENT, PRODUCTION
CAPABILITY TO VERIFY LSAR WITH MEASURED VALUES DURING OT & E
CAPABILITY TO UPDATE /VALIDATE LSAR DURING O & S PHASE
OBJECTIVE 5
INTERFACE FOR USING STANDARD MODELS

PROTOTYPE UDB FEATURES
FIGURE 3

Objective 3 - The transformation tables necessary to relate field data to LSAR terms have been developed. As discussed earlier, this is a very important and needed capability; first, to permit establishment of a BCS/LSAR, and second, to permit validation of the new weapon system LSAR using existing field data collection systems. Development of this capability should be accomplished in future UDB efforts.

Users must manually create a BCS record using data elements and values currently retrievable from the ACDF. Using the BCS data retrieved from the ACDF, users may utilize the field-to-LSAR transformation tables for constructing manually BCS data that could be loaded in ALSAR.

Objectives 4-7 - The ALSAR system has been fully developed to satisfy Air Force requirements. A BCS may be loaded into the ALSAR and cross-referenced to the new weapon system LSAR. The system is fully automated to assist in systems engineering integration and to create, manage, and utilize a common, consistent record for all ILS elements. ALSAR programs are available to create outputs from the LSAR that may be batch loaded as input to standard logistics models. The ALSAR has an extensive output summary report capability in accordance with standard Data Item Descriptions (DID) typically required in Air Force programs.

The ALSAR has provisions for recording measured values for R&M parameters required to be tested during OT&E. This provision may also be used to enter measured values to validate the LSAR during the O&S phase. As discussed under Objective 3, however, the ACDF capability to process field data so as to machine output the required LSAR measured values has not yet been developed.

Objective 8 - The same ACDF programs used for Objective 2 may be used to track the continuing performance of operational weapon systems. The ACDF presents average values for numerous R&M and support cost parameters. No trend data capability is provided in the prototype ACDF, but it is expected that future UDB efforts will address this need.

SECTION III

AUTOMATED LSAR SYSTEM

OVERVIEW

As discussed in the previous sections, the ALSAR is a vitally important part of the UDB. Specifically, the ALSAR is needed to satisfy Objectives 3, 4, 6, and 7 shown in Figure 1 and discussed in Section II. The ALSAR system discussed in this section has been fully developed and partially tested, using HH-60 helicopter data. Since December 1982, the system has been successfully used in a production mode to support the Defensive Avionics portion of the B-1B Strategic Bomber Program. As this program progresses, the ALSAR system features will be fully validated for operational use on other programs.

BASELINE

The DARCOMP 750-16 data elements, data definitions, and data sheets/records were used as the baseline for the ALSAR system. To the extent practical, consistent with Air Force requirements, compatibility with the DARCOM baseline was maintained. Substantive additions to the baseline were necessary, however, in order to develop a fully automated system that would satisfy Air Force and DOD requirements, and provide many useful and cost-saving features for industry and Government users. Since the ALSAR is a fully automated database system, none of the DARCOM ADP/LSAR software or programs are used.

DOCUMENTATION

The ALSAR system has been fully documented and delivered to the Air Force. In Table 1 the individual documents associated with the ALSAR are listed.

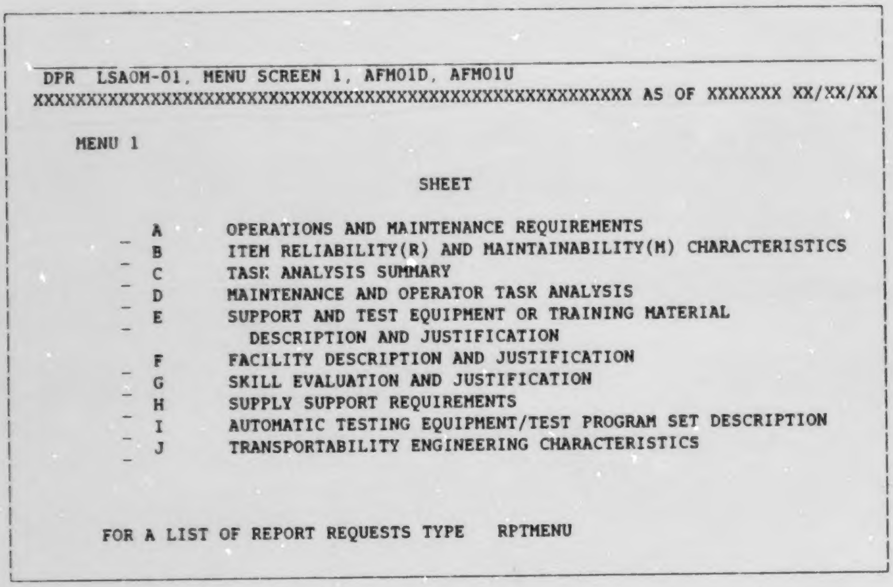
TABLE 1. ALSAR DOCUMENTATION

Document	Purpose
Data Sheets	Data input sheets used by ALSAR
Data Element Descriptions	For data elements on each data sheet
Data Entry Instructions	For entering information about each data element on each data sheet
ALSAR Users Guide	For using each feature of the automated system
Access and Security Manual	On-line procedures to control database security
Maintenance and Update Manual	Instructions for ADP maintenance and update
Software Documentation	Complete programming documentation for ALSAR system

Data Sheets

The ALSAR input data sheets A through J are listed in Figure 4 and included in Appendix A. Figure 4 is actually a CRT menu screen of the on-line ALSAR system. These data sheets contain all of the data elements in the ALSAR system. The on-line CRT screens used to input data are designed in a manner consistent with the card record layouts on each sheet. A data sheet status output report may be machine produced, on command, in the format and content identical to each input data sheet.

In Appendix A the reader will notice that the basic 80-column card format is used for the data sheets. This was the result of an Air Force requirement that ALSAR be developed so as to retain consistency with the DARCOM ADP/LSAR system wherever possible. Since the DARCOM system is basically a sequential file batch processing scheme, it requires the 80-column card format along with duplication of key information on each card. The fully automated ALSAR system would permit more simplified, efficient, and user friendly data sheets. For example, Data Sheet A



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 DPR  LSAOM-01, MENU SCREEN 1, AFM01D, AFM01U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXX XX/XX/XX

    MENU 1

                                 SHEET

       _  A      OPERATIONS AND MAINTENANCE REQUIREMENTS
       _  B      ITEM RELIABILITY(R) AND MAINTAINABILITY(M) CHARACTERISTICS
       _  C      TASK ANALYSIS SUMMARY
       _  D      MAINTENANCE AND OPERATOR TASK ANALYSIS
       _  E      SUPPORT AND TEST EQUIPMENT OR TRAINING MATERIAL
                   DESCRIPTION AND JUSTIFICATION
       _  F      FACILITY DESCRIPTION AND JUSTIFICATION
       _  G      SKILL EVALUATION AND JUSTIFICATION
       _  H      SUPPLY SUPPORT REQUIREMENTS
       _  I      AUTOMATIC TESTING EQUIPMENT/TEST PROGRAM SET DESCRIPTION
       _  J      TRANSPORTABILITY ENGINEERING CHARACTERISTICS


      FOR A LIST OF REPORT REQUESTS TYPE   RPTMENU
```

DATA SHEET MENU SCREEN

FIGURE 4

could be changed to display the Logistics Support Analysis Control Number (LSACN) only once, rather than displaying it on each card. In future UDB development efforts, consideration will be given to designing the data sheets in a manner consistent with the fully automated ALSAR system.

Initial user reaction to the ALSAR data sheets may be negative because of the redundant key data elements appearing on all sheets and the data elements added to the A, B, E, and H Sheets appear to increase the user workload. In fact, the fully automated ALSAR system eliminates the need for users to enter redundant data. The new data elements added to the data sheets enable the ALSAR to satisfy multiple Air Force and DOD requirements and to facilitate automated output reporting that will result in significant time and cost savings.

Data Entry Instructions

All of the data elements on the ALSAR data sheets are defined in the Data Element Descriptions (DED) document. The Data Entry Instructions (DEI) document tells the user how to fill out each data sheet. Since the ALSAR is fully automated for on-line data entry and update, it is not mandatory that users manually fill out data sheets. In any case, users should be thoroughly familiar with the ALSAR procedures and conventions regarding data entry in order to capitalize on the many useful and time-saving features of the fully automated system.

ALSAR Users Guide

While the DEI instructs the user in how and where to enter the results of the LSA on each data sheet, this guide describes the on-line and batch functions of the ALSAR system and provides instruction for operation and use of the on-line system. This includes procedures for retrieving CRT terminal screens to enter, update, and display information in the database relating to any data sheet and also for requesting hard copy or tape output summary products and reports available from the ALSAR system.

Access and Security Manual

This document provides instructions for establishing and controlling the ALSAR database accessibility and security. While this on-line feature is easy to use, it provides great flexibility in controlling the access and update capability of functional area users.

Maintenance and Update Manual

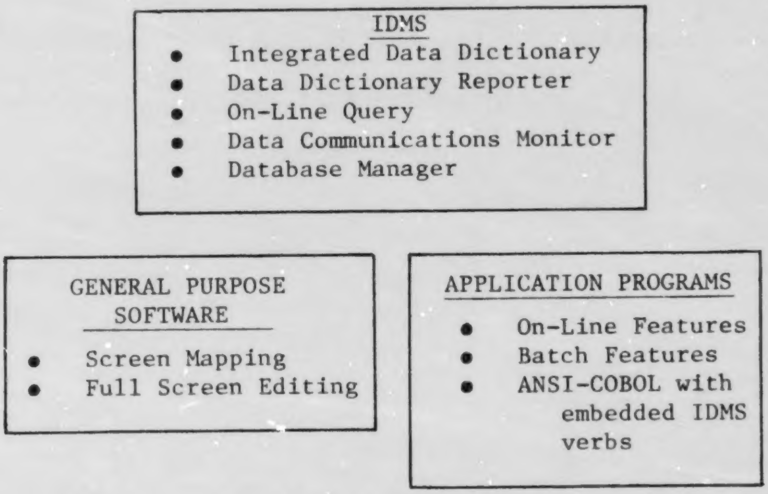
This document provides information of interest only to computer center personnel responsible for the maintenance and update of the ALSAR system. This document, along with the complete software documentation package, should be sufficient to permit installation, operation, and maintenance of the ALSAR at a computer facility that has compatible hardware and system software.

SYSTEM DESIGN

Figure 5 shows the basic design approach for the fully automated ALSAR system. Notice that the ALSAR utilizes the Integrated Database Management

System (IDMS) developed by Cullinet Corporation. The IDMS components used are the Integrated Data Dictionary, Data Dictionary Reporter, On-Line Query, Data Communications Monitor, and Database Manager. Clemson University developed a general purpose software package for creating CRT terminal screens and performing full screen edits. This package is provided with the ALSAR.

All on-line application programs are designed to run with the IDMS Data Communications Monitor, an efficient and multi-tasking communications monitor. This enables excellent response for larger multi-terminal real-time systems and also provides for automatic journaling of all transactions.



ALSAR SYSTEM DESIGN

FIGURE 5

There are approximately 300 application programs written to accomplish the on-line and batch functions of the ALSAR. They are written in ANSI COBOL with embedded IDMS verbs. Each program was designed with functional modularity in order to allow for ease of maintenance and adaptation to new environments. The application system contains a complete security subsystem that can be used to control access to and modification of data by users. This security feature also provides a complete audit trail of changes made during on-line operations.

GENERAL FEATURES

There are several important features of the ALSAR that relate to the overall LSA process and specific DOD requirements.

LSA CONTROL NUMBER (LSACN)

The LSACN is a key data element in the ALSAR system and is comprised of the Work Unit Code (WUC) and the Work Breakdown Structure (WBS). This approach accomplishes several important objectives addressed in DODD 5000.39 and MIL-STD-1388. First, it permits convenient and effective management of a common, consistent database of information necessary to support all ILS elements. Second, it provides an effective mechanism to relate field data to LSAR data during the O&S phase, thus facilitating validation of the LSAR for a weapon system. Third, it provides an inherent cross-reference between WUC and WBS for correlation of support costs to acquisition costs.

The ALSAR does not depend upon the LSACN to generate provisioning technical documentation, as does the DARCOM system. The manner in which ALSAR accomplishes automatic generation of provisioning documentation is discussed later. Since this approach is used, the ALSAR assigns LSACNs only to the lowest reparable level of the end item. Assignment of LSACNs to non-reparable items is not required.

PERFORMANCE TRACKING

The Air Force typically requires that the performance of specified parameters be verified in OT&E and tracked during O&S. In order to achieve the objectives of the UDB, specifically Objectives 6 and 7 in Figure 1 which address this Air Force requirement, several features were incorporated into the ALSAR system.

Additional Data Elements

Numerous data elements were added to the A and B Data Sheets, as shown in Table 2. With these additional data elements the required or allocated,

TABLE 2. ALSAR PERFORMANCE TRACKING

I. PERFORMANCE PARAMETER VALUES

REQUIRED/ALLOCATED VALUE	PREDICTED VALUE	MEASURED VALUE

SYSTEM LEVEL ONLY

- MISSION COMPLETION SUCCESS PROBABILITY
- AVAILABILITY:
  - FMC, FMC/M, FMC/S, FMC/M&S
  - NMC, NMC/M, NMC/S, NMC/M&S
  - FMC, MPT/SORTIE
- BASE LEVEL MMH/FH: BOTH ORGANIZATIONAL LEVEL AND INTERMEDIATE LEVEL
  - SUPPORT GENERAL
  - SCHEDULED AND SPECIAL INSPECTIONS (03 & 04)
  - PREVENTIVE MAINTENANCE
  - CORRECTIVE MAINTENANCE
  - TOTAL BASE LEVEL MMH/FH
- BASE LEVEL: BOTH ORGANIZATIONAL LEVEL AND INTERMEDIATE LEVEL
  - MEAN MAINTENANCE M/H TO REPAIR (MMMTR)
  - MAXIMUM ELAPSED TIME TO REPAIR
- DEPOT MMH/FH:
  - PROGRAMMED DEPOT MAINTENANCE
  - COMPONENT REPAIR/OVERHAUL
- MISSION RECONFIGURATION TIME:
  - MEAN ELAPSED TIME
  - 90th PERCENTILE
  - MEAN CREW SIZE
- ANALYTICAL CONDITION INSPECTION
  - MEAN ELAPSED TIME
  - MEAN MANHOURS
- QUICK TURNAROUND TIME
  - ELAPSED TIME
  - MAINTENANCE MAN-MINUTES
  - CREW SIZE
  - AIRCREW MAN-MINUTES
- FAULT DETECTION/ISOLATION AND FALSE FAULT INDICATION
- RELIABILITY:
  - MEAN TIME BETWEEN REMOVALS (MTBR)
  - MEAN TIME BETWEEN CORRECTIVE MAINTENANCE (MTBM)
  - INHERENT MALFUNCTIONS (TYPE 1 MTBM)
  - INDUCED MALFUNCTIONS (TYPE 2 MTBM)
  - NO DEFECT (TYPE 6 MTBM)
  - PREVENTIVE (SCHEDULED REMOVALS) (MTBM)
  - MEAN TIME BETWEEN MAINTENANCE ACTIONS (MTBMA)
  - RATIO OF MAINTENANCE ACTIONS TO MAINTENANCE EVENTS
  - MEAN TIME TO REPAIR

SUBSYSTEM & COMPONENT LEVELS

- FAULT DETECTION/ISOLATION AND FALSE FAULT INDICATION
- RELIABILITY:
  - MEAN TIME BETWEEN REMOVALS (MTBR)
  - MEAN TIME BETWEEN CORRECTIVE MAINT (MTBM)
  - INHERENT MALFUNCTIONS (TYPE 1 MTBM)
  - INDUCED MALFUNCTIONS (TYPE 2 MTBM)
  - NO DEFECT (TYPE 6 MTBM)
  - PREVENTIVE (SCHEDULED REMOVALS) MTBM
  - MEAN TIME BETWEEN MAINTENANCE ACTIONS (MTBMA)
  - RATIO OF MAINTENANCE ACTIONS TO MAINTENANCE EVENTS
  - MEAN TIME TO REPAIR
- BASE LEVEL MMH/FH - BOTH ORGANIZATIONAL (ON-EQUIP) AND INTERMEDIATE (OFF-EQUIP) LEVELS
  - PREVENTIVE MAINTENANCE
  - CORRECTIVE MAINTENANCE
  - TOTAL BASE LEVEL MMH/FH
- BASE LEVEL MEAN MAINTENANCE M/H
  - PREVENTIVE
  - CORRECTIVE
- DEPOT LEVEL MMH/FH AND MEAN TIME TO REPAIR (MTTR)
- WORK UNIT CODE BY TASK CODE: (TASK SUMMARY)
  - TASK FREQUENCY
  - TASK TIME (ELAPSED)
  - TASK MANHOURS
  - NO. OF MEN/TASK

II. COST PARAMETER VALUES

ESTIMATED	ACTUAL

SYSTEM LEVEL ONLY

- ESTIMATED AND ACTUAL UNIT (FLYAWAY) COST - BOTH RECURRING & NON-RECURRING
- ESTIMATED AND ACTUAL ANNUAL O&S COST
- INITIAL SUPPORT EQUIPMENT COST - BOTH COMMON AND PECULIAR S.E.
- SPARES COST - BOTH INITIAL AND REPLENISHMENT SPARES
- BASE MATERIAL COST/YR
- BASE POL COST/YR
- TECHNICAL PUBLICATIONS COST & QUANTITY
- TRAINING COST - PERSONNEL & MATERIAL/EQUIPMENT
- NUMBER OF PEOPLE TRAINED & NEW SKILLS REQUIRED

BOTH AT BASE & DEPOT LEVELS

- PROGRAMMED DEPOT MAINTENANCE COST/YR
- COMPONENT REPAIR/OVERHAUL DEPOT COST/YR
- INITIAL DEPOT SUPPORT EQUIPMENT COST
- FACILITIES COST - BOTH FOR BASE LEVEL & DEPOT LEVEL

ACTUAL

SUBSYSTEM & COMPONENT LEVELS

- BCS SUPPORT COST IN ACDF
- NEW SYSTEM SUPPORT COST DATA PROVIDED/UPDATED IN ACDF

predicted, and measured values of performance parameters may be recorded and tracked throughout the life cycle of a system. These parameters may be measured at the system, major subsystem, and component levels if desired.

At the system level, data elements were also added to the A Sheet to capture predicted and measured values of selected cost parameters. The predicted values would be entered early in the development phase, and the measured values during the production phase. This information would be valuable in the future for establishing cost estimating relationships and improving predictions on future weapon system programs. At the subsystem and component levels, the UDB will use the ACDF to capture selected VAMOSC data to track cost parameters for a weapon system.

Task Codes

The ALSAR uses the following approach to assign maintenance task codes for Air Force applications. The fifth and eighth positions of the Task Code use unique task identifiers, as applicable, to facilitate comparability between LSAR and field data systems. All other positions of the Task Code are assigned in accordance with MIL-STD-1388-2A. The manner in which ALSAR utilizes the WUC and Task Code is crucial to verifying the LSAR for a weapon system after fielding.

How Malfunction Codes and Work Center

The ALSAR D Sheet incorporates a How Malfunctioned (How Mal) code for further relating the LSAR data to field data. The ALSAR also uses an automated scheme to relate the Skill Specialty Code (SSC) primarily responsible for a task to a performing work center, thus providing another necessary link for comparing LSAR data to field data.

Maintenance Events/Maintenance Actions

There are other features incorporated in the ALSAR system to bridge the inherent gap between LSAR and field data. For example, the procedures for documenting maintenance requirements on the B Sheet result in automatic identification of maintenance actions that comprise a maintenance event. All of the above features, plus some provided but not mentioned here, are needed to effectively utilize field data to update and verify the LSAR, thus making the ALSAR a useful tool throughout the life cycle of a weapon system.

ALTERNATE ACTION

Each ALSAR data sheet has a data field to record an Alternate Action Code (A, B, C, etc.). When an LSA/LSAR is accomplished for multiple design concepts, the Alternate Action Code is used to partition the data for each separate concept. The provision is useful in trade-off studies and provides a permanent record, if desired, for candidate approaches considered. Since the Alternate Action Code is a key parameter, the alternate chosen as the final design is designated as Alternate Action A. In this way the primary LSA/LSAR record for an entire end item will be partitioned under a single Alternate Action Code. Alternate Action Code Z is used to designate the BCS for the new weapon system within the UDB, thereby providing a fully automated BCS conveniently cross-referenced to the new weapon system LSA/LSAR.

LSAR REVISIONS

The specific LSA/LSAR requirements of any given program will determine the extent to which the ALSAR data sheets are completed. For each card on each data sheet required by a given acquisition program, users may determine the specific data elements that must be filled in to constitute a completed card. Some programs may require all data elements on a given card, while others may require only a portion of the card to be filled in. The point is that only the user on a given program will know what constitutes a completed card and data sheet.

The Update Code (UC) in the right-hand column of each card (see Appendix A) will be used to indicate whether the card is in-work or completed. When the user changes the card status to "completed," the ALSAR will automatically record and track subsequent revisions using the UC and date. The same is true for a completed data sheet. This provides an automated capability to assist ILS Managers in monitoring the progress of LSA/LSAR activity in terms of initial completion status, as well as the revisions made to completed work. From an historical perspective, this capability will provide an LSAR audit trail that may be used throughout the life cycle of a weapon system. This may be particularly useful when tracking the performance of key parameters, since it will provide a date benchmark corresponding to equipment modifications during O&S.

EFFICIENT DATA ENTRY

As mentioned earlier, the ALSAR data sheets were patterned after the DARCOMP 750-16 formats. As a result, there is significant redundancy of key data elements on most of the data sheets. The fully automated ALSAR has been designed to eliminate the requirement for the user to enter redundant data. Some of the automated features incorporated to save user time and effort are discussed below.

Key Parameters

The ALSAR database is structured to utilize key parameters such as the LSACN, Alternate Action, and Manufacturers Part Number (MPN). While it is necessary to specify key parameters when using the on-line system, the machine will automatically enter these specified parameter values on multiple cards, as appropriate. For example, it is not necessary to enter the LSACN on each card of the A, B, C, D1, E, F, and G Sheets.

Header Information

The first three cards of the A, B, and C Sheets contain identical header information. When an A Sheet is completed for the system and major subsystem levels, the ALSAR will automatically enter the B Sheet header information. Similarly, when a B Sheet is completed for component levels, the C Sheet header information will automatically be entered.

When information describing a part is entered on the B, C, or D1 Sheet, the ALSAR will automatically enter selected parts information in the Supply Support (H Sheet) record or the Support/Test Equipment (E Sheet) record, as appropriate. This provision not only saves data entry time, but insures consistency between the maintenance, supply support, and support equipment records.

Multiple Applications

The first time a Line Replaceable Unit (LRU), Shop Replaceable Unit (SRU), or repair part is recorded in the maintenance record (B, C, or DI Sheet), a basic Supply Support record (H01, H02 and H03 cards) will be established for that part. This basic record will not be repeated even though a part may be used in multiple applications in an end item. For each individual application of the part, only the application significant information must be entered. The ALSAR system transfers available information to the basic record the first time a part is identified, and prompts the user to complete the basic and application significant information. For subsequent applications of that part, the ALSAR system notifies the user that only application significant information is needed, and automatically aggregates relevant provisioning information for the part.

The same process is used for support and test equipment on the E Sheet. The first time a particular piece of equipment is required to support a maintenance task, the machine will transfer the available information and prompt the user to complete a basic E Sheet. When subsequent maintenance tasks require this piece of equipment, the ALSAR will automatically record these requirements by maintenance task and the item being supported. In a similar manner the ALSAR permits a basic record for each Facility (F Sheet) and Skill (G Sheet), and automatically records each individual requirement for this logistics resource.

NARRATIVE DATA

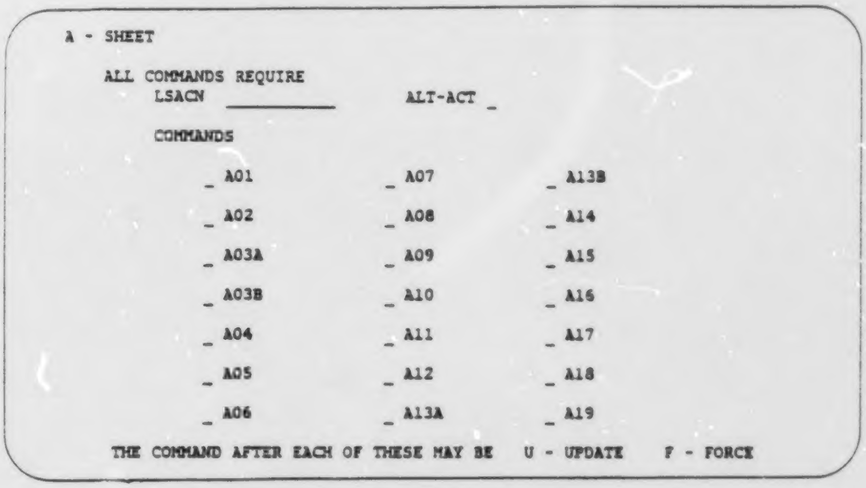
The narrative cards on the ALSAR data sheets incorporate a card letter and sequence line number (Seq. No.) provision that enables virtually unlimited space for narrative information. This provision will enable ILS Managers to further integrate and support the efforts of those responsible for technical manuals through the ALSAR. The provision is required to enable the ALSAR to produce important output reports such as the Support Equipment Recommendations Document (SERD).

ON-LINE PROCESSING

The ALSAR system utilizes on-line CRT terminal screens to enter, retrieve, and update information in the LSAR database. In addition, all of the output products available from ALSAR may be requested using the on-line system. The ALSAR Users Guide shown in Table 1 provides the detailed information for operation of the on-line system.

MENU SCREENS

Thirteen menu screens are provided for those getting acquainted with the system. Figure 4 is the menu screen that shows all of the ALSAR data sheets. Placing an X by one of the data sheets will cause the menu for that sheet to be displayed. For example, placing an X by the A-Sheet will display the A-Sheet menu screen as shown in Figure 6. All of the card records on the A-Sheet are shown in Figure 6, and to display a screen for a particular card record, the user would simply place an X by the desired card.



```
A - SHEET

    ALL COMMANDS REQUIRE
        LSACN ____________         ALT-ACT _

        COMMANDS

            _ A01            _ A07          _ A13B

            _ A02            _ A08          _ A14

            _ A03A           _ A09          _ A15

            _ A03B           _ A10          _ A16

            _ A04            _ A11          _ A17

            _ A05            _ A12          _ A18

            _ A06            _ A13A         _ A19

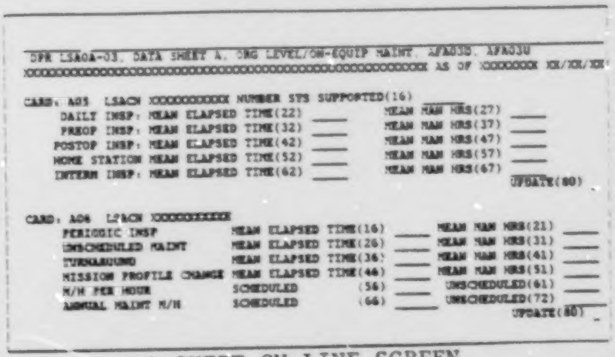
     THE COMMAND AFTER EACH OF THESE MAY BE   U - UPDATE    F - FORCE
```

A-SHEET MENU SCREEN

FIGURE 6

DATA ENTRY SCREENS

There are 70 on-line screens to enter, retrieve, and update information in the database. Each screen consists of data elements for one or more card records on one of the data sheets in Appendix A. Figures 7 and 8 are representative examples of these on-line screens. Figure 7 is the screen for the A05 and A06 cards of the A-Sheet, and Figure 8 is for the B01, B02, and B03A cards of the B-Sheet. Each on-line screen may be called by simply entering a command for the desired card along with the required parameters.



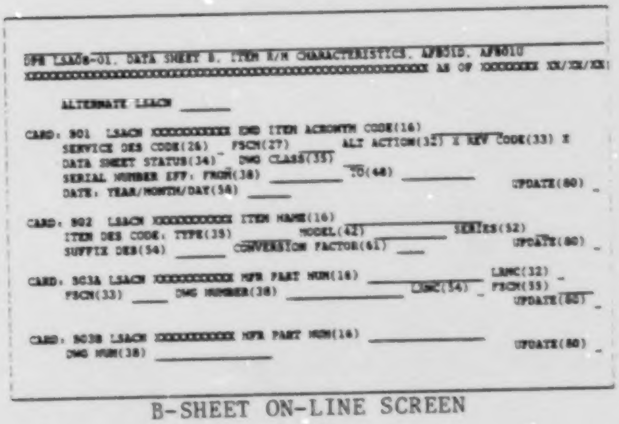
```
DPR LSA0A-03. DATA SHEET A. ORG LEVEL/ON-EQUIP MAINT. AFA03D. AFA03U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXXX XX/XX/XX

CARD: A05  LSACN XXXXXXXXXXX NUMBER SYS SUPPORTED(16) ____
    DAILY INSP: MEAN ELAPSED TIME(22) ____        MEAN MAN HRS(27) ____
    PREOP INSP: MEAN ELAPSED TIME(32) ____        MEAN MAN HRS(37) ____
   POSTOP INSP: MEAN ELAPSED TIME(42) ____        MEAN MAN HRS(47) ____
   HOME STATION MEAN ELAPSED TIME(52) ____        MEAN MAN HRS(57) ____
   INTERM INSP: MEAN ELAPSED TIME(62) ____        MEAN MAN HRS(67) ____
                                                           UPDATE(80) _

CARD: A06  LSACN XXXXXXXXXXX
    PERIODIC INSP         MEAN ELAPSED TIME(16) ____ MEAN MAN HRS(21) ____
    UNSCHEDULED MAINT     MEAN ELAPSED TIME(26) ____ MEAN MAN HRS(31) ____
    TURNAROUND            MEAN ELAPSED TIME(36) ____ MEAN MAN HRS(41) ____
    MISSION PROFILE CHANGE MEAN ELAPSED TIME(46) ____ MEAN MAN HRS(51) ____
    M/H PER HOUR          SCHEDULED         (56) ____  UNSCHEDULED(61) ____
    ANNUAL MAINT M/H      SCHEDULED         (66) ____  UNSCHEDULED(72) ____
                                                           UPDATE(80) _
```

A-SHEET ON-LINE SCREEN

FIGURE 7



```
DPR LSA0B-01. DATA SHEET B. ITEM R/M CHARACTERISTICS. AFB01D. AFB01U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXXX XX/XX/XX

    ALTERNATE LSACN ____

CARD: B01  LSACN XXXXXXXXXXX END ITEM ACRONYM CODE(16) ________
    SERVICE DES CODE(26) _ FSCM(27) ____  ALT ACTION(32) X REV CODE(33) X
    DATA SHEET STATUS(34) _ DWG CLASS(35) _
    SERIAL NUMBER EFF: FROM(38) ________ TO(48) ________
    DATE: YEAR/MONTH/DAY(58) ____                           UPDATE(80) _

CARD: B02  LSACN XXXXXXXXXXX ITEM NAME(16) ________
    ITEM DES CODE: TYPE(35) _  MODEL(42) ________  SERIES(52) _
    SUFFIX DES(54) ____ CONVERSION FACTOR(61) __            UPDATE(80) _

CARD: B03A LSACN XXXXXXXXXXX MFR PART NUM(16) ____________ LSMC(32) _
    FSCM(33) ____ DWG NUMBER(38) ____________ LSMC(54) _ FSCM(55) ____
                                                            UPDATE(80) _

CARD: B03B LSACN XXXXXXXXXXX MFR PART NUM(16) ____________  UPDATE(80) _
    DWG NUM(38) ____________
```

B-SHEET ON-LINE SCREEN

FIGURE 8

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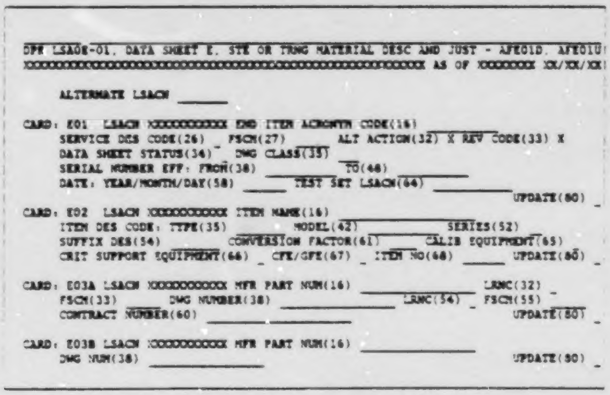
For example, entering the E01 command, along with the desired LSACN and Alternate Action will retrieve the screen shown in Figure 9; this screen also contains the E02, E03A, and E03B cards. When the screen is retrieved, the LSACN is machine entered in each card, as indicated by the X's in the LSACN fields.



```
DPR LSA08-01. DATA SHEET E. STE OR TRNG MATERIAL DESC AND JUST - AFE01D. AFE01U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXXX XX/XX/XX

     ALTERNATE LSACN ______

CARD: E01  LSACN XXXXXXXXXXX END ITEM ACRONYM CODE(16) __________
     SERVICE DES CODE(26) _ FSCM(27) _____ ALT ACTION(32) X REV CODE(33) X
     DATA SHEET STATUS(34) _ DWG CLASS(35) _
     SERIAL NUMBER EFF: FROM(38) __________ TO(48) __________
     DATE: YEAR/MONTH/DAY(58) ______ TEST SET LSACN(64) ____________
                                                            UPDATE(80) _
CARD: E02  LSACN XXXXXXXXXXX ITEM NAME(16) ___________________
     ITEM DES CODE: TYPE(35) ______ MODEL(42) __________ SERIES(52) __
     SUFFIX DES(54) ______ CONVERSION FACTOR(61) ____ CALIB EQUIPMENT(65) _
     CRIT SUPPORT EQUIPMENT(66) _ CFE/GFE(67) _ ITEM NO(68) _____ UPDATE(80) _

CARD: E03A LSACN XXXXXXXXXXX MFR PART NUM(16) ________________ LRNC(32) _
     FSCM(33) _____ DWG NUMBER(38) ________________ LRNC(54) _ FSCM(55) _____
     CONTRACT NUMBER(60) ____________________                   UPDATE(80) _

CARD: E03B LSACN XXXXXXXXXXX MFR PART NUM(16) ________________
     DWG NUM(38) ________________                               UPDATE(80) _
```

E-SHEET ON-LINE SCREEN

FIGURE 9

The numbers in parentheses after each data element denote the column number of the first position for a data element field. This feature will reduce errors when data are being entered from hard-copy worksheets. The screen cursor is programmed to move automatically to the next unfilled data field to simplify and expedite data entry.

ENTERING DATA

Once a screen has been displayed, the user may complete all or part of the data elements, as desired. Changes or corrections may be made on the screen prior to hitting the "ENTER" key on the terminal. The "ENTER" key records the screen display on the ALSAR database, assuming data have been entered by the user.

EDIT CHECKS

The on-line system incorporates edit checks for selected data elements.

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The edits performed on each screen are described in the ALSAR Users Guide, and generally consist of checks for required presence, alphanumeric characters, field size, special codes, and format. When the user attempts to enter data that do not pass an edit check, the CRT terminal screen will indicate the error by flashing the affected data element field and will not allow any of the data on the screen to be entered in the database. At this point the user has two options. First, the user may correct the errant data on the screen and then enter them in the database. Alternately, the user may force the errant data to be entered in the database. This is accomplished by using the Force (F) command and then pushing the "ENTER" key. The F command would be used when it is not convenient or possible to determine the cause of an error immediately, and the majority of the data on the screen are correct.

DATA RETRIEVAL

When information has been entered on the database, such data may be retrieved and displayed by simply calling the screen for the card, with appropriate parameters, on which the data were entered. When errant data were forced, the ALSAR system will display the errant data field with a series of question marks (???), whether retrieved on-line or on hard-copy printout.

DATA UPDATE

Except for key parameters which are protected fields, any information in the ALSAR database may be updated at the discretion of a user. After the appropriate on-line screen containing the information of interest is retrieved, the UPDATE (U) command would be used to activate this mode. At this point the user may make any desired modifications or deletions by simply typing over the existing data and entering the updated information in the database.

When an update is accomplished on a card previously coded "COMPLETE" in the Update Code (UC), the ALSAR will automatically record the update as a modification to the LSAR. The purpose and value of this feature was discussed earlier.

GLOBAL CHANGE CAPABILITY

At times it may be necessary to change key parameter values (LSACN, MPN, etc.) previously entered in the database. While such changes are not possible using the UPDATE command, batch programs are provided to accomplish changes in a global manner. For example, if an LSACN requires a change, this program will replace the old LSACN with the new LSACN at every appropriate location throughout the database.

GENERIC COPY CAPABILITY

When an LSA has been accomplished on an item and the LSAR entered in the database, the user may find that all or part of this information may be applicable to another item for which LSA/LSAR is required. The ALSAR system will, on user command, selectively copy all or part of the database record for one LSACN to another LSACN, whether it be one card or multiple data sheets. Once the desired copy function has been accomplished, the update capability would be used to make corrections, as necessary, to satisfy unique requirements of the newly created LSACN record.

MAINTENANCE AND SUPPLY SUPPORT FILES

Supply support requirements are basically derived from maintenance requirements, as are the requirements for personnel, support equipment, training, training equipment, facilities, and technical manuals. Maintenance requirements are derived from the system level operational and support concepts, and from detailed R&M analyses at all levels of hardware indenture. The ALSAR system incorporates features that, in essence, take the maintenance requirements documented on the B, C, D, and D-1 Sheets and automatically create basic records of other support requirements on appropriate data sheets (E, F, G and H). These features were mentioned earlier in the paragraph addressing efficient data entry for multiple applications. Using this approach, the ALSAR system assures consistency and compatibility between the maintenance requirements and the other ILS elements.

Portions of the B, C, and D1 Sheets are used to drive the supply support requirements documented on the H-Sheet. The C03 card is used to establish the top-down hardware breakdown in accordance with engineering drawings and the MPN to Next-Higher-Assembly MPN relationships. Using this information, the ALSAR automatically creates H40 cards from which the Provisioning Parts List (PPL) is machine produced. Using this approach, the ALSAR eliminates the need to use the LSACN to produce provisioning technical documentation as required by DARCOM. This permits the LSACN to be assigned only to the reparable level using the WUC/WBS, which in turn results in the significant advantages discussed earlier. Non-reparable items are appropriately accounted for and documented in accordance with standard reporting requirements.

When specific LSA requirements for a given acquisition program do not logically result in a complete top-down breakdown of the MPN to Next-Higher-Assembly MPN relationship for the total system, the user would utilize the ALSAR on-line system to enter H40 cards to add missing parts, as applicable. The ALSAR system processing will notify the user when and where gaps in the PPL exist.

BATCH PROCESSING

INITIAL BATCH LOAD

The Initial Batch Load can be used for initial loading of the database or for subsequent additions of new records if the key information is unique. It is not intended for update or editing capability for existing data. The system accepts ALSAR card formatted data from sequential files. There are three phases to the load process, each of which performs edits on the input data and produces a report. These reports should be used to guarantee the integrity of the loaded database.

Phase 1

In this phase the card images are read, edited individually while flow assurance editing is done, and finally, the narrative data are separated from the rest of the inputs. The first report that is produced from this phase is a control report which is to be used until this phase is completed. It is a sequential listing assigning a control number for future reference. Next an edit report is produced detailing which fields are in error and indicating whether insufficient previous cards have been received. This report also warns of possible key parameter information problems that may be encountered in Phase 2. Regardless of the error, all should be corrected to insure a sound database. The edits performed are identical to those for the on-line data entry process. Phase 1 should be rerun until an error-free run is obtained, or it is determined that all remaining errors are inconsequential.

Phase 2

Most of the database records consist of multiple cards, but sometimes a card is used to create one database record and occasionally cards are broken down to produce multiple database records. Phase 2 performs the function of breaking down and/or building up the cards to obtain these records. It produces a sequential file and a report which warns of incomplete information, duplicate information, or unidentifiable data detected in this process. The report identifies the sequential number that was assigned in the first phase, pinpointing the exact card to be checked.

Phase 3

The third and final phase takes the records created from Phase 2 after all errors are corrected and actually stores them onto the database in their appropriate position. Again some errors may be detected since records are connected to each other in a like fashion as the cards were in Phase 2. When duplicates are found, or inadequate connecting records are available, then an error is flagged to indicate further action is required to store the record properly.

SUSPENSE REPORT

There are times when it is appropriate to store cards onto the database which have a field in error. This may be done from the Initial Batch Load when all of the card edit errors are not corrected in Phase 1 of that process. Errors may also be stored from on-line processing. When an element fails to pass an edit, the element will blink on the screen. If the error cannot be corrected, the user can force the rest of the data on the screen to be stored by typing an "F" for forced update in the command field and pressing the "ENTER" key. The element in error will be stored as question marks. This feature allows the valid data to be stored and available for use, and saves the time that would be required to re-enter the data from scratch later.

Each database record has a suspense flag that will be set when an error is stored in that record. Periodically, a Suspense Report will identify all cards that have elements in error. The software will re-edit all records that are flagged suspended. If all errors in the record have been corrected, the suspense flag is turned off. All remaining errors will be included in the Suspense Report.

The Suspense Report is used to insure that errors are identified so that corrective action can be taken. Errors listed on the report are sorted by card type, by LSACN. The card images correspond to the data sheets, and errant data elements are identified. Errors may be corrected by calling the screen with the data in error and re-entering the element using the Update Command.

TURNAROUND DOCUMENTS

When data are entered on the database via on-line or batch processing, the ALSAR will generate a Turnaround Document if desired by the user. These hard copy printouts display information in data sheet format and provide additions/changes to the database that occurred during the processing period since the last turnaround was generated. When database transactions were modifications or updates to information previously entered, the Turnaround Document will display a before and after image.

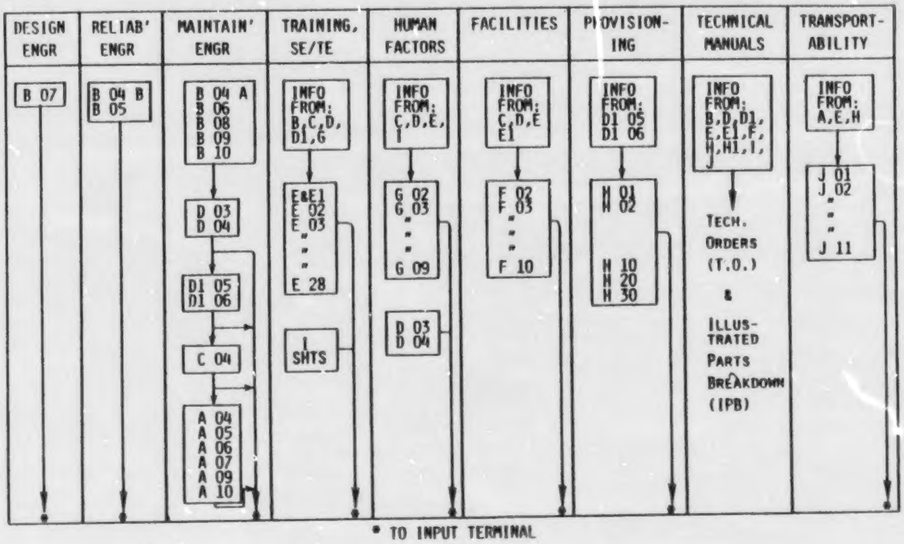
The purpose of the Turnaround Document is to provide a hard copy printout of information actually loaded in the database to functional area users who are responsible for the accuracy and completeness of the data. Data elements that did not pass edit checks and were forced on the database will appear as question marks on the Turnaround Document. The user may use this document to verify and correct data entries. This would be particularly useful when engineers/analysts responsible for data quality do not actually perform the data entry. Managers could use the Turnaround Documents to monitor the LSA/LSAR activity and for hard copy backup files, as desired.

PROMPTING DOCUMENTS

Although systems engineering is a highly iterative process involving many different functional areas, it can generally be described in the following way. The process starts with design engineering activity. Next, the results of design engineering are used by reliability engineering to accomplish failure modes, effects, and criticality analyses (FMECA) and other important functions. Next, the results of reliability engineering would be used by maintainability engineering to determine the maintenance and support requirements necessary to achieve and sustain a fully mission capable weapon system. These three steps can be thought of as occurring in a serial manner. When maintainability engineering completes the detailed task analyses and identifies support requirements necessary to repair and sustain the weapon system in operational status, the activities of many other functional areas may be accomplished in a generally parallel manner.

The ALSAR system uses Prompting Documents to assist in the integration of all functional area activities involved in the systems engineering process. When information is entered in the database by one functional area, the ALSAR keys on selected data fields to determine if the data entered are needed by another functional area user. If so, the machine generates a Prompting Document to that functional area. The Prompting Document preprints information needed by the next functional area to accomplish additional LSA and reminds the user that additional LSAR input data are now owed to the system. The information on the Prompting Document is extracted from portions of the data sheets in Appendix A and is presented in a format consistent with these data sheets.

Figure 10 shows the basic approach used to generate and distribute Prompting Documents. It is seen that specific data sheet cards generally relate to the functional area across the top. The card numbers in the body of Figure 10 relate to the data sheets in Appendix A. Since the specific functional area responsibilities may vary from one organization to another, the prompting scheme is table driven. That is, the Prompting Documents may be flexibly tailored to fit any particular organization.

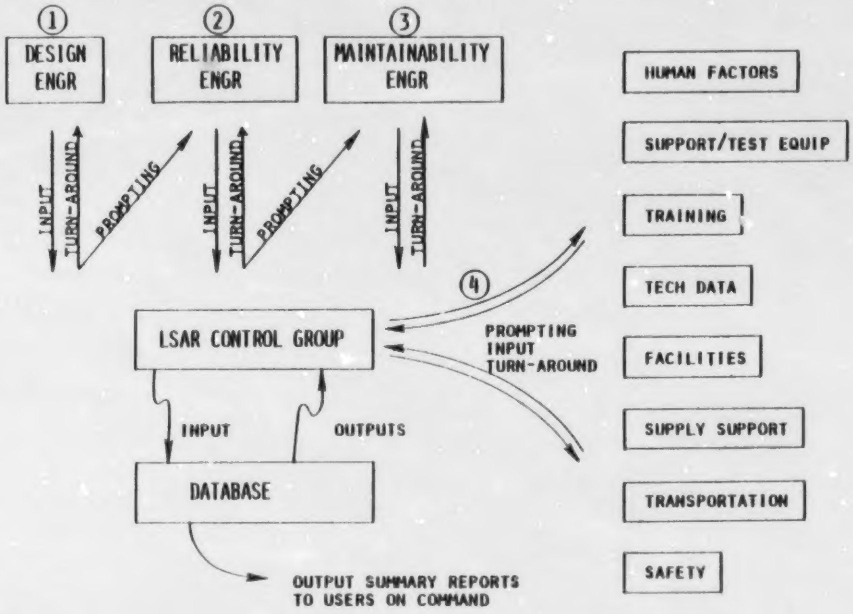


* TO INPUT TERMINAL

GENERATION OF PROMPTING DOCUMENTS
FIGURE 10

Figure 11 shows the process beginning in Step 1 with design engineering entering a functional design description of the item under analysis. A Turnaround Document is sent back to design engineering, and a Prompting Document is sent to reliability engineering, Step 2. When reliability enters the information it owes the system, the process is repeated and a Prompting

Document is sent to maintainability engineering, Step 3. When maintainability engineering enters the information it owes the system, Step 4 simultaneously sends prompting documents to one or more functional areas as shown on the right side of Figure 11, depending upon the particular support requirements. That is, if support requirements for that functional area exist, a Prompting Document is sent; otherwise, it is not sent.



USE OF PROMPTING DOCUMENTS

FIGURE 11

In actual practice the systems engineering process should involve Design, Reliability, and Maintainability Engineering working as a team to investigate and evaluate alternative design concepts in an iterative closed-loop manner. Similarly, the maintainability engineers should team with Provisioning, Technical Manuals, and other functional areas to evaluate the overall support requirements and capabilities. This evaluation, in turn, should be fedback to the design and R&M loop to insure that supportability factors influence design alternatives and decisions.

The Prompting Documents provide a useful mechanism to enhance timely integration and feedback in the overall systems engineering. Managers could use this capability as a tool to assist in formally organizing the integration activity and in monitoring the results.

LSA/LSAR PROGRESS REPORTS

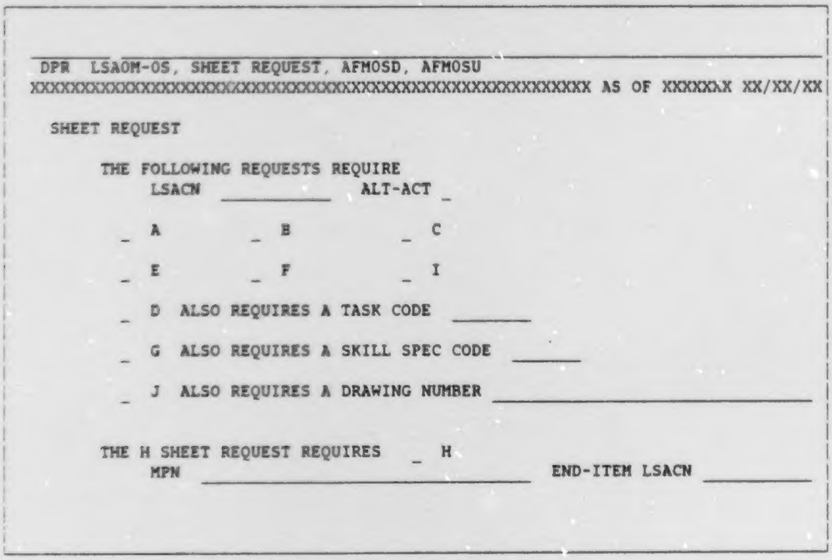
Managers and functional area analysts may, on occasion, have a need to review the current status of the LSA/LSAR effort for a given program. The ALSAR system currently provides two reports for this purpose.

LSACN Status Report

This report has been designed to list all of the active LSACNs associated with a given program effort. The report, which may be requested using an on-line menu screen, provides a list of all currently active LSACNs in the database for a specified end item. For each LSACN the report will list all of the data sheets that have been entered, along with the date that each sheet was last revised. If the LSACN requires new skills, the G-Sheet for each of the required new skills is reported along with the status of each G-Sheet. If the LSACN requires facilities, the F-Sheet for each required facility is reported along with the status of each F-Sheet.

Data Sheet Status

The ALSAR system will provide a hard copy printout of the current status of the data sheets that exist for a specified LSACN. The on-line screen shown in Figure 12 may be used to obtain this output. The user may specify one or more of the data sheets. The output will include all of the information in the database for each sheet requested, including narrative. The format and content of each sheet will be identical to those of the corresponding data sheet in Appendix A, except that cards for which no data exist will be omitted. The data sheets requested will be printed in alphabetical order.



```
DPR  LSAOM-OS, SHEET REQUEST, AFMOSD, AFMOSU
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXX XX/XX/XX

  SHEET REQUEST

       THE FOLLOWING REQUESTS REQUIRE
            LSACN  ___________  ALT-ACT _

       _ A          _ B            _ C

       _ E          _ F            _ I

       _ D  ALSO REQUIRES A TASK CODE  ________

       _ G  ALSO REQUIRES A SKILL SPEC CODE  _______

       _ J  ALSO REQUIRES A DRAWING NUMBER  ________________________________

       THE H SHEET REQUEST REQUIRES   _  H
            MPN  _________________________________  END-ITEM LSACN  ___________
```

DATA SHEET STATUS

FIGURE 12

REPORTING SYSTEM

Many reports may be generated by the ALSAR system. Table 3 lists the reports that fully comply with standard specifications.

DARCOM LSA REPORTS

The LSA summary reports shown in Table 3 are the standard DARCOM reports that the ALSAR system is programmed to generate. The reports shown are those currently required by the Air Force. The ALSAR also generates the D-220 output for provisioning purposes.

TABLE 3. ALSAR OUTPUT REPORTS

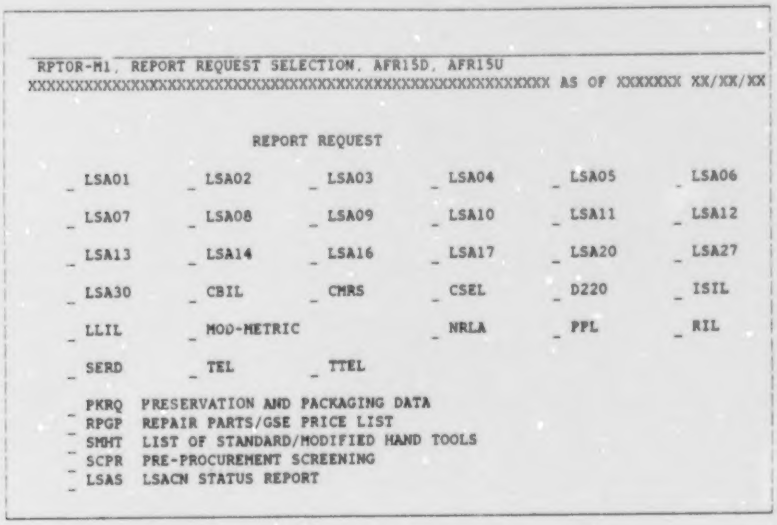
	LSA SUMMARY REPORTS
LSA-01	DIRECT ANNUAL MAINTENANCE MAN-HOUR BY SKILL SPECIALTY CODE AND CATEGORY OF MAINTENANCE
LSA-02	PERSONNEL AND SKILL SUMMARY
LSA-03	RELIABILITY AND MAINTENANCE SUMMARY
LSA-04	MAINTENANCE ALLOCATION SUMMARY
LSA-05	SUPPORT ITEM UTILIZATION SUMMARY
LSA-06	CRITICAL MAINTENANCE TASK SUMMARY
LSA-07	SUPPORT ITEM REQUIREMENTS BY SKILL SPECIALTY CODE AND MAINTENANCE CATEGORY
LSA-08	SUPPORT ITEM REQUIREMENTS BY MAINTENANCE CATEGORY AND SKILL SPECIALTY CODE
LSA-09	SUPPORT ITEMS LIST
LSA-10	SUPPORT ITEMS LIST
LSA-11	SPECIAL TRAINING DEVICE SUMMARY
LSA-12	SPECIAL FACILITY REQUIREMENTS
LSA-13	SUPPORT EQUIPMENT GROUPING NUMBER UTILIZATION SUMMARY
LSA-14	TRAINING TASK LIST
LSA-16	PRELIMINARY MAINTENANCE ALLOCATION SUMMARY
LSA-17	PRELIMINARY MAINTENANCE ALLOCATION SUMMARY TOOL PAGE
LSA-20	TOOL AND EQUIPMENT REQUIREMENTS
LSA-27	SPECIAL TOOLS LIST
LSA-30	SPECIAL TOOLS LIST
	DATA ITEM DESCRIPTIONS
DI-S-6176	SUPPORT EQUIPMENT RECOMMENDATION DATA (SERD)
DI-S-6177	CALIBRATION MEASUREMENT REQUIREMENTS SUMMARY (CMRS)
DI-V-6183A/M	CONSOLIDATED SUPPORT EQUIPMENT LIST (CSEL)
DI-L-6147A	PRESENTATION AND PACKAGING DATA
DI-V-6181/M	REPAIR PARTS/GSE PRICE LIST (JET ENGINE)
DI-V-6185A/M	LIST OF STANDARD/MODIFIED HAND TOOLS
D220	AFLC PROVISIONING SYSTEM
DI-V-7008	COMMON BULK ITEMS LIST (CBIL)
DI-V-7006/M	INTERIM SUPPORT ITEMS LIST (ISIL)
DI-V-7004	LONG LEAD ITEMS LIST (LLIL)
DI-V-7002	PROVISIONING PARTS LIST (PPL)
DI-V-7005	REPAIRABLE ITEMS LIST (RIL)
DI-V-7007	TOOLS AND TEST EQUIPMENT LIST (TTEL)
DI-V-7016D/M	PRE-PROCUREMENT SCREENING
DI-H-3256	TRAINING EQUIPMENT LIST (TEL)

DATA ITEM DESCRIPTIONS (DID)

Table 3 also shows many complex reports that the ALSAR can generate in total compliance with standard DIDs. The SERD, CMRS, and CSEL are reports that are extremely costly to accomplish manually. Using the ALSAR procedures and conventions, these reports are completely machine generated. Likewise, the provisioning technical documentation listed is completely machine generated.

REPORT SELECTION SCREENS

All of the reports listed in Table 3 may be requested via on-line report selection screens. Figure 13 is the Report Menu screen from the ALSAR Users Guide. Placing an X by the desired report will produce the appropriate Report Selection Screen. For example, if an X was placed by CMRS, the Report Selection Screen shown in Figure 14 would appear.



```
 RPTOR-M1, REPORT REQUEST SELECTION, AFR15D, AFR15U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXX XX/XX/XX

                        REPORT REQUEST

    _ LSA01      _ LSA02      _ LSA03      _ LSA04      _ LSA05      _ LSA06

    _ LSA07      _ LSA08      _ LSA09      _ LSA10      _ LSA11      _ LSA12

    _ LSA13      _ LSA14      _ LSA16      _ LSA17      _ LSA20      _ LSA27

    _ LSA30      _ CBIL       _ CMRS       _ CSEL       _ D220       _ ISIL

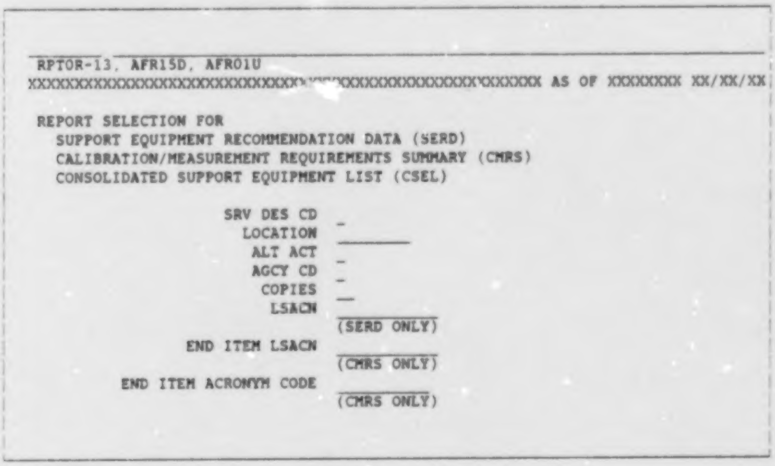
    _ LLIL       _ MOD-METRIC              _ NRLA       _ PPL        _ RIL

    _ SERD       _ TEL        _ TTEL

    _ PKRQ  PRESERVATION AND PACKAGING DATA
    _ RPGP  REPAIR PARTS/GSE PRICE LIST
    _ SMHT  LIST OF STANDARD/MODIFIED HAND TOOLS
    _ SCPR  PRE-PROCUREMENT SCREENING
    _ LSAS  LSACN STATUS REPORT
```

ALSAR REPORT MENU SCREEN

FIGURE 13



```
 RPTOR-13, AFR15D, AFR01U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXXX XX/XX/XX

 REPORT SELECTION FOR
   SUPPORT EQUIPMENT RECOMMENDATION DATA (SERD)
   CALIBRATION/MEASUREMENT REQUIREMENTS SUMMARY (CMRS)
   CONSOLIDATED SUPPORT EQUIPMENT LIST (CSEL)

                    SRV DES CD  _
                      LOCATION  ________
                       ALT ACT  _
                       AGCY CD  _
                        COPIES  __
                         LSACN  __________
                                (SERD ONLY)
                END ITEM LSACN  __________
                                (CMRS ONLY)
        END ITEM ACRONYM CODE   __________
                                (CMRS ONLY)
```

CMRS REPORT SELECTION SCREEN

FIGURE 14

This screen is also used to request the SERD and CSEL reports. The user would then enter the information necessary to specify the CMRS report for the desired end item, indicate how many copies are desired, and specify the location of the printer to be used to produce the hard copy report.

All of the output reports have similar Report Selection Screens, with the required report specification parameters listed.

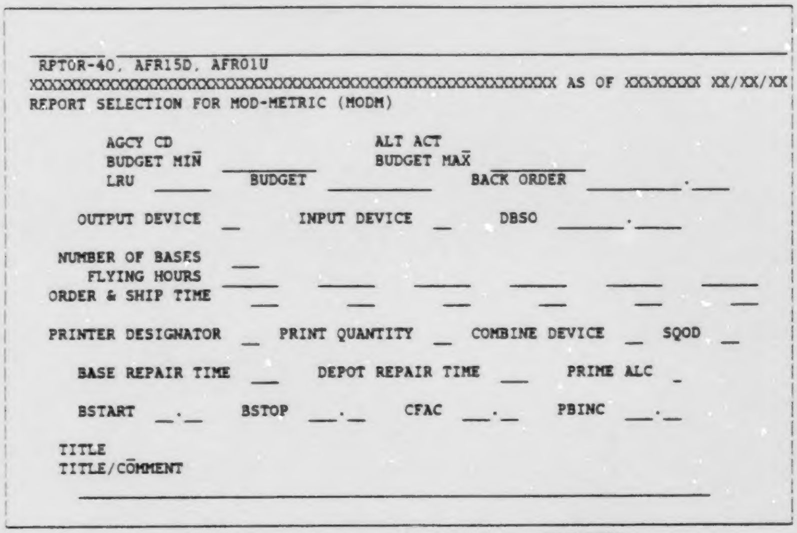
TAPE OUTPUTS

The ALSAR system can also generate tape outputs that may be used as input to three standard models used by the Air Force; the Mod-Metric, NRLA, and LCOM.

Figures 15 and 16 are the on-line Report Selection Screens for requesting the ALSAR to generate the output tapes for the MOD-METRIC and NRLA, respectively. A pseudo Base Level History Tape (ABD6DA) and B-4 Master File Tape are generated for input to the LCOM. The ALSAR Users Guide provides detailed instructions for building a constant data file to enable the ALSAR to generate the ABD6DA using LSAR data.

REPORT REQUEST SUMMARY

The ALSAR has an on-line screen that displays a current status summary of all the reports that have been requested by a specific user but that have not been printed. This screen may be used to check the status of a report, to delete or hold a report, or to initiate some changes to the original request.



```
RPTOR-40, AFR15D, AFR01U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXXX XX/XX/XX
REPORT SELECTION FOR MOD-METRIC (MODM)

      AGCY CD _                   ALT ACT _
      BUDGET MIN _______          BUDGET MAX _______
      LRU ____   BUDGET _______       BACK ORDER ______.___

   OUTPUT DEVICE _     INPUT DEVICE _     DBSO _____.___

  NUMBER OF BASES __
     FLYING HOURS ____  ____  ____  ____  ____  ____
 ORDER & SHIP TIME  __    __    __    __    __    __

 PRINTER DESIGNATOR _  PRINT QUANTITY _  COMBINE DEVICE _  SQOD _

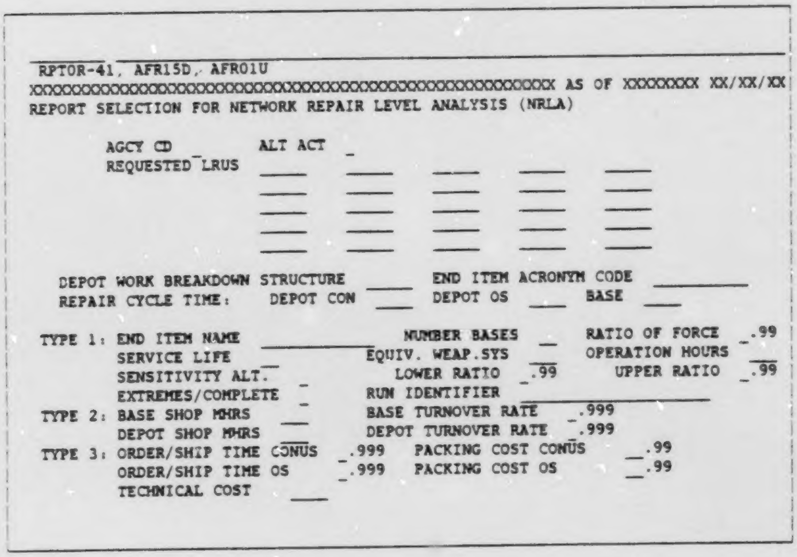
   BASE REPAIR TIME __   DEPOT REPAIR TIME __    PRIME ALC _

   BSTART _._     BSTOP __._     CFAC __._     PBINC __._

  TITLE
  TITLE/COMMENT _
   ______________________________________________________
```

MOD-METRIC TAPE SELECTION SCREEN

FIGURE 15



```
RPTOR-41, AFR15D, AFR01U
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX AS OF XXXXXXXX XX/XX/XX
REPORT SELECTION FOR NETWORK REPAIR LEVEL ANALYSIS (NRLA)

      AGCY CD _      ALT ACT  _
      REQUESTED LRUS ____  ____  ____  ____  ____
                     ____  ____  ____  ____  ____
                     ____  ____  ____  ____  ____
                     ____  ____  ____  ____  ____
                     ____  ____  ____  ____  ____

  DEPOT WORK BREAKDOWN STRUCTURE ___   END ITEM ACRONYM CODE ________
  REPAIR CYCLE TIME:   DEPOT CON ___   DEPOT OS ___   BASE ___

 TYPE 1: END ITEM NAME ________      NUMBER BASES _    RATIO OF FORCE _.99
         SERVICE LIFE __           EQUIV. WEAP.SYS __  OPERATION HOURS __
         SENSITIVITY ALT. _          LOWER RATIO _.99     UPPER RATIO _.99
         EXTREMES/COMPLETE _       RUN IDENTIFIER ______________
 TYPE 2: BASE SHOP MHRS __         BASE TURNOVER RATE  _.999
         DEPOT SHOP MHRS __        DEPOT TURNOVER RATE _.999
 TYPE 3: ORDER/SHIP TIME CONUS _.999  PACKING COST CONUS  __.99
         ORDER/SHIP TIME OS    _.999  PACKING COST OS     __.99
         TECHNICAL COST ___
```

NRLA TAPE SELECTION SCREEN

FIGURE 16

SECTION IV

AIRCRAFT CHARACTERISTICS DATA FILE

GENERAL

In this section the current development status of the protytype Aircraft Characteristics Data File (ACDF) is presented in summary form. The reader is encouraged to review again Figure 1 and the discussion of the conceptual UDB approach and objectives presented in Section II. In addition, the reader is encouraged to review again Figure 3 and the discussion of the UDB features relative to the overall system objectives.

PURPOSE AND USE

The purpose of the ACDF is to provide a mechanism whereby Government and industry users have convenient and timely access to design, R&M, and support cost information about existing operational aircraft weapon systems. Primary users of the ACDF would be those from Government and industry who are responsible for the acquisition and support of new weapon systems and equipment.

Conceptual Phase

In the early weapon system planning stages, the ACDF would be useful to those responsible for establishing system and major subsystem requirements and specifications. The ACDF design and utilization data could be used to assist in identifying the BCS for the new weapon system. When the operational and support concepts are formulated, the R&M and support cost data associated with the BCS would assist in establishing the system availability and R&M requirements and in the allocation of R&M system requirements to the subsystem levels. In general, the ACDF data can then be used in conjunction with early LSA/LSAR efforts to support and influence tradeoff studies of alternate design approaches for the new weapon system.

Preliminary and Detailed Design Phases

As the design activity proceeds through increasing levels of detail, the ACDF may be used to obtain BCS data at lower hardware indenture levels. The process of using the BCS in conjunction with LSA/LSAR to support design tradeoff studies and analyses can be used throughout the preliminary and detailed design phases.

O&S Phase

When the new weapon system becomes operational, the ACDF can be used to measure and evaluate the system performance in terms of R&M parameters and support costs. Field data from the MDCS and VAMOSC systems would be processed by ACDF programs and provided to users via the on-line access system.

Research and Development (R&D) Activities

Those organizations involved with R&D to develop new or improved predictive models and tools would be users of the ACDF. Timely and convenient access to this database would greatly reduce the cost and increase the effectiveness of data collection efforts by a large community of researchers. The results of R&D efforts that utilize the ACDF for source data would be easier to compare and validate, as opposed to those that did not use a common data source.

TECHNICAL APPROACH

The ACDF was developed under the concept that it would eventually be implemented and maintained at a central Government facility. Since the specific machine and software environment to house the ACDF was not known, there was a strict requirement to design the system for optimal transportability. As a result of this requirement, and the need for an efficient on-line capability to serve remote users, the ACDF was designed as an interactive Time-Sharing Option (TSO) system that utilizes the Virtual Storage Access Method (VSAM). Application programs are written exclusively in American National Standard Common Business Oriented Language (ANS COBOL). VSAM records are designed to group or categorize data in a manner intended to ehhance the utility of the ACDF to multiple users and the efficiency of operating the system.

MODES OF OPERATION

Data Entry - The ACDF system data files would be initially loaded and subsequently updated by the organization responsible for operation and maintenance of the ACDF. Batch load programs would be used for data entry, which would be be accomplished by the host computer facility. Remote on-line users would not have the capability to enter or modify data in the ACDF.

Data Retrieval - Data loaded in the ACDF may be retrieved by any authorized user via on-line CRT terminal screen, or batch output programs generating hard copy printouts. Users may specify and request hard copy outputs using the on-line mode of operation. The ACDF output for specified data is presented in the same image, form, and content, whether displayed on the CRT or hard copy. Users operating CRT terminals with screen image printers could obtain hard copy of selected data. The system is designed to permit dial-up line access to the ACDF.

DOCUMENTATION

Table 4 lists the documents that record the results of the ACDF development effort. This documentation, dated April 1983, has been delivered to the Air Force.

TABLE 4. ACDF DOCUMENTATION

DOCUMENT	PURPOSE
ACDF Data Element Descriptions (DED)	Defines each data element in each ACDF Record
ACDF Data Input Record Layout	Defines the record layouts for data input to ACDF
ACDF Users Guide	Provides instructions for use of the on-line system
ACDF Programming Documentation	Contains all programs developed for operation of the ACDF

ACDF DED

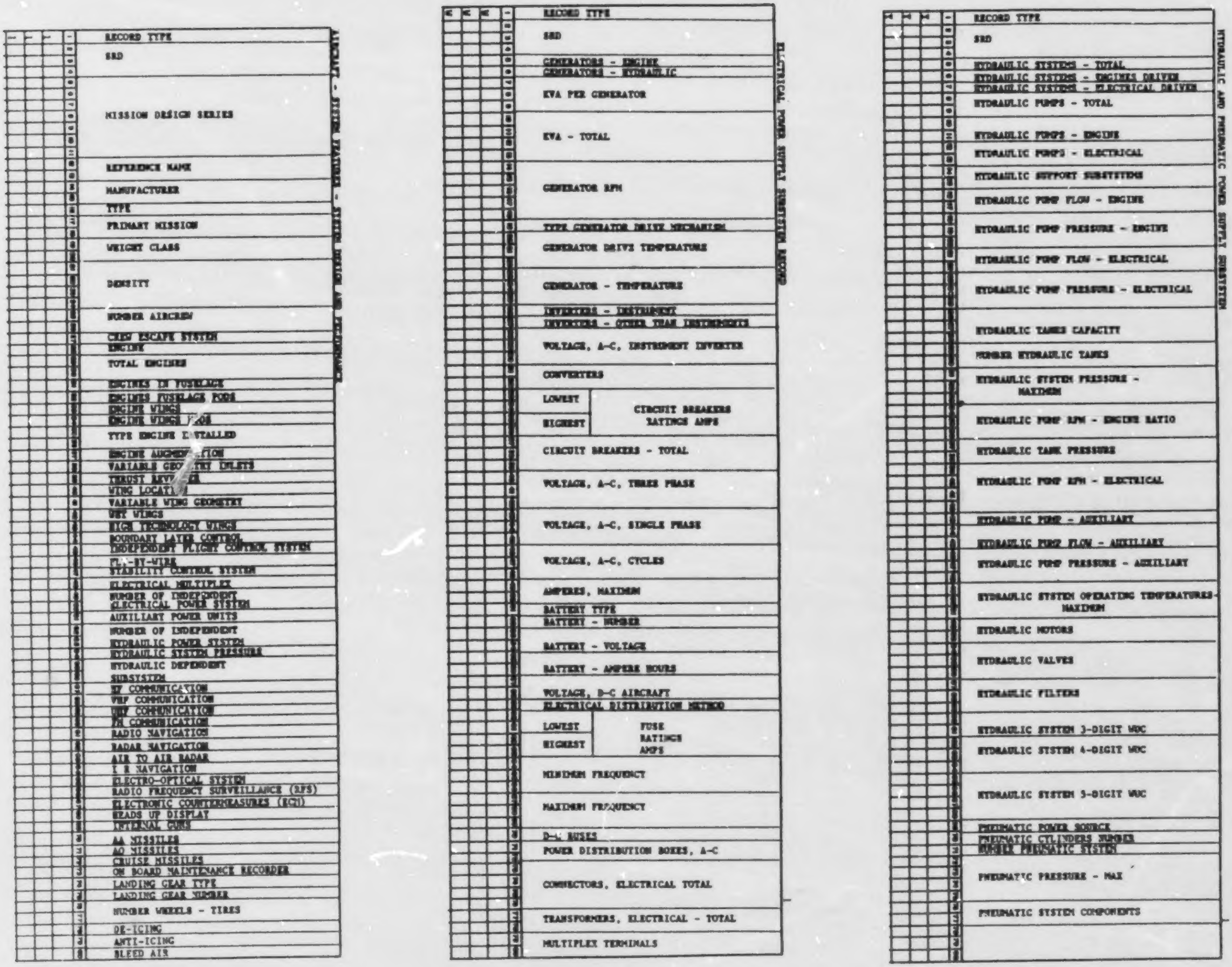
Unlike the ALSAR which used DARCOMP 750-16 as the baseline, no baseline system was available for the ACDF. As a result, the data elements in the DED were selected on the basis of the previous work by Thomas and Hankins (1980), which included a major industry survey that investigated the data needs of those responsible for weapon system design, R&M, and logistics support. The ACDF DED provides the definition for each data element in the system, including the field size and other characteristics. The data elements are then organized into specific records for greater utility to the user when retrieving ACDF data.

Data Input Record Layouts

This document contains the data sheets depicting the layouts for each record in the ACDF. Those responsible for loading data in the ACDF would use these data sheets in conjunction with the DED to input data. There are 66 data input sheets covering all of the ACDF records. An example of the data sheets is shown in Figure 17, which includes a portion of the System Features, Electrical Power Supply, and Hydraulic Power Supply Records.

Users Guide

Thiis document provides detailed instructions for using the on-line



AIRCRAFT - SYSTEM FEATURES - SYSTEM DESIGN AND PERFORMANCE

- RECORD TYPE
- SRD
- MISSION DESIGN SERIES
- REFERENCE NAME
- MANUFACTURER
- TYPE
- PRIMARY MISSION
- WEIGHT CLASS
- DENSITY
- NUMBER AIRCREW
- CREW ESCAPE SYSTEM
- ENGINE
- TOTAL ENGINES
- ENGINES IN FUSELAGE
- ENGINES FUSELAGE PODS
- ENGINE WINGS
- ENGINE WINGS PODS
- TYPE ENGINE INSTALLED
- ENGINE AUGMENTATION
- VARIABLE GEOMETRY INLETS
- THRUST REVERSER
- WING LOCATION
- VARIABLE WING GEOMETRY
- WET WINGS
- HIGH TECHNOLOGY WINGS
- BOUNDARY LAYER CONTROL
- INDEPENDENT FLIGHT CONTROL SYSTEM
- FLY-BY-WIRE
- STABILITY CONTROL SYSTEM
- ELECTRICAL MULTIPLEX
- NUMBER OF INDEPENDENT ELECTRICAL POWER SYSTEM
- AUXILIARY POWER UNITS
- NUMBER OF INDEPENDENT HYDRAULIC POWER SYSTEM
- HYDRAULIC SYSTEM PRESSURE
- HYDRAULIC DEPENDENT SUBSYSTEM
- HF COMMUNICATION
- VHF COMMUNICATION
- UHF COMMUNICATION
- FM COMMUNICATION
- RADIO NAVIGATION
- RADAR NAVIGATION
- AIR TO AIR RADAR
- I R NAVIGATION
- ELECTRO-OPTICAL SYSTEM
- RADIO FREQUENCY SURVEILLANCE (RFS)
- ELECTRONIC COUNTERMEASURES (ECM)
- HEADS UP DISPLAY
- INTERNAL GUNS
- AA MISSILES
- AG MISSILES
- CRUISE MISSILES
- ON BOARD MAINTENANCE RECORDER
- LANDING GEAR TYPE
- LANDING GEAR NUMBER
- NUMBER WHEELS - TIRES
- DE-ICING
- ANTI-ICING
- BLEED AIR

ELECTRICAL POWER SUPPLY SUBSYSTEM LAYOUT

- RECORD TYPE
- SRD
- GENERATORS - ENGINE
- GENERATORS - HYDRAULIC
- KVA PER GENERATOR
- KVA - TOTAL
- GENERATOR RPM
- TYPE GENERATOR DRIVE MECHANISM
- GENERATOR DRIVE TEMPERATURE
- GENERATOR - TEMPERATURE
- INVERTERS - INSTRUMENT
- INVERTERS - OTHER THAN INSTRUMENTS
- VOLTAGE, A-C, INSTRUMENT INVERTER
- CONVERTERS
- LOWEST / HIGHEST — CIRCUIT BREAKERS RATINGS AMPS
- CIRCUIT BREAKERS - TOTAL
- VOLTAGE, A-C, THREE PHASE
- VOLTAGE, A-C, SINGLE PHASE
- VOLTAGE, A-C, CYCLES
- AMPERES, MAXIMUM
- BATTERY TYPE
- BATTERY - NUMBER
- BATTERY - VOLTAGE
- BATTERY - AMPERE HOURS
- VOLTAGE, D-C AIRCRAFT
- ELECTRICAL DISTRIBUTION METHOD
- LOWEST / HIGHEST — FUSE RATINGS AMPS
- MINIMUM FREQUENCY
- MAXIMUM FREQUENCY
- D-C BUSES
- POWER DISTRIBUTION BOXES, A-C
- CONNECTORS, ELECTRICAL TOTAL
- TRANSFORMERS, ELECTRICAL - TOTAL
- MULTIPLEX TERMINALS

HYDRAULIC AND PNEUMATIC POWER SUPPLY SUBSYSTEM

- RECORD TYPE
- SRD
- HYDRAULIC SYSTEMS - TOTAL
- HYDRAULIC SYSTEMS - ENGINES DRIVEN
- HYDRAULIC SYSTEMS - ELECTRICAL DRIVEN
- HYDRAULIC PUMPS - TOTAL
- HYDRAULIC PUMPS - ENGINE
- HYDRAULIC PUMPS - ELECTRICAL
- HYDRAULIC SUPPORT SUBSYSTEMS
- HYDRAULIC PUMP FLOW - ENGINE
- HYDRAULIC PUMP PRESSURE - ENGINE
- HYDRAULIC PUMP FLOW - ELECTRICAL
- HYDRAULIC PUMP PRESSURE - ELECTRICAL
- HYDRAULIC TANKS CAPACITY
- NUMBER HYDRAULIC TANKS
- HYDRAULIC SYSTEM PRESSURE - MAXIMUM
- HYDRAULIC PUMP RPM - ENGINE RATIO
- HYDRAULIC TANK PRESSURE
- HYDRAULIC PUMP RPM - ELECTRICAL
- HYDRAULIC PUMP - AUXILIARY
- HYDRAULIC PUMP FLOW - AUXILIARY
- HYDRAULIC PUMP PRESSURE - AUXILIARY
- HYDRAULIC SYSTEM OPERATING TEMPERATURES - MAXIMUM
- HYDRAULIC MOTORS
- HYDRAULIC VALVES
- HYDRAULIC FILTERS
- HYDRAULIC SYSTEM 3-DIGIT WUC
- HYDRAULIC SYSTEM 4-DIGIT WUC
- HYDRAULIC SYSTEM 5-DIGIT WUC
- PNEUMATIC POWER SOURCE
- PNEUMATIC CYLINDERS NUMBER
- NUMBER PNEUMATIC SYSTEM
- PNEUMATIC PRESSURE - MAX
- PNEUMATIC SYSTEM COMPONENTS

SAMPLE ACDF DATA INPUT RECORD LAYOUTS

FIGURE 17

system to retrieve data from the ACDF. Procedures are given to retrieve data from each record, and for special functions that present data from multiple records. The manner in which the data are displayed on the CRT terminal screen for each record is also described in the Users Guide.

Programming Documentation

This 480-page document includes a description of each COBOL application program associated with the ACDF. Documentation on each program includes the program name, calling and called programs, copy code, VSAM or sequential files accessed, function of the program, and the methodology used. The source code for each program is also included.

ACDF RECORD CONTENTS

The records described in the DED are listed in Table 5. The ACDF would contain information in each one of those records about each aircraft's MDS. A brief description of the contents of these records is presented next.

TABLE 5. ACDF RECORDS FOR EACH AIRCRAFT MDS

SYSTEM RECORDS	SUBSYSTEM RECORDS
AIRCRAFT GENERAL	AIRFRAME
MISSION	AVIONICS
BASIC MISSION PERFORMANCE	CREW STATION
SYSTEM DESIGN AND PERFORMANCE	ELECTRICAL POWER
ENGINE	ENVIRONMENTAL CONTROL
SYSTEM UTILIZATION	FLIGHT CONTROL
SYSTEM FEATURES	FUEL
SYSTEM R&M/COST	HYDRAULIC POWER
OPERATIONAL R&M/COST	LANDING GEAR
NATIONAL STOCK NUMBER	POWER PLANT INSTALLATION

AIRCRAFT RECORD

This record is basically header information that provides a top level description of a particular aircraft weapon system.

MISSION RECORD

This record contains narrative information from the Air Force Guide (AFG-2) briefly describing the primary and secondary missions of an aircraft MDS.

BASIC MISSION PERFORMANCE RECORD

This record contains information from the AFG-2 for the basic mission performance. The data elements and definitions are consistent with AFG-2. The record is designed to accommodate differences in AFG-2 data between aircraft MDS.

SYSTEM DESIGN AND PERFORMANCE RECORD

This record contains information about top-level system design and operational performance characteristics of an aircraft MDS. The information includes dimensions, weights, thrust, speeds, range, rate of climb, and altitudes. It also provides the total number of 2-, 3-, 4-, and 5-digit WUC items associated with an aircraft MDS.

ENGINE RECORD

This record contains AFG-3 design and performance information about engines used in operational aircraft MDS. The data elements and definitions are consistent with AFG-3. The record is designed to accommodate differences in AFG-3 data between engine types and models.

SYSTEM UTILIZATION RECORD

This record contains information about the fleet utilization of an aircraft MDS. It includes the active inventory, base level flying time and sorties, average sortie length, and other relevant fleet information.

SYSTEM FEATURES RECORD

This record contains information about top-level system design features incorporated on an aircraft MDS. The features include weight class, number of aircrew personnel, type crew escape system, type engines, number of engines, type engine installation, wing geometry, type flight controls, type and number of electrical and hydraulic systems, type avionics installed, built-in-test units, and many other features.

AVIONICS SYSTEMS RECORD

This record contains information that identifies avionics equipment, by standard equipment nomenclature (SEN), that is installed on an aircraft MDS. For each SEN the record specifies whether or not built-in-test provisions are incorporated.

SYSTEM R&M COST RECORD

This record contains top system level R&M and cost information for an aircraft MDS. The information includes unit fly-away cost, system level support costs, base and depot level maintenance manhours, base level maintenance manhours per flying hour (MMH/FH) and sortie, and overall MMH/FH.

OPERATIONAL SUPPORT AND COST RECORD

This record contains detailed R&M and support cost information for a weapon system. There are five sub-records, all of which will be useful to those responsible for LSA/LSAR activity on new system acquisition programs.

Aircraft Level/AFR 800-18 Format 4

This sub-record provides system level R&M data in the format and content specified by Air Force Regulation (AFR) 800-18, "Reliability and Maintainability Program" (formerly AFR 80-5). This record breaks out preventive and corrective maintenance into all the required categories addressed in LSAR, and provides standard R&M parameter terms for each category.

Work Center by Aircraft

This sub-record groups R&M data by work centers associated with an aircraft MDS. For a large aircraft MDS, this record could contain data for approximately thirty (30) work centers.

Support Cost by WUC

This sub-record contains support cost information that may be retrieved at the 5-digit WUC level, or summarized at the 2-, 3-, or 4-digit WUC levels. The machine stores only the 5-digit WUC data, and internal programs calculate summarized values on request by users. The data elements and definitions in this record are consistent with VAMOSC data elements related to cost.

R&M Data by WUC

This sub-record contains R&M parameter data at the lower levels of WUC indentures. The data are expressed in terms compatible with those required for detailed levels of LSA/LSAR for new system acquisition programs.

Maintenance Action by WUC

This sub-record contains summary data by WUC, sorted by standard Air Force maintenance "action taken," "how malfunctioned," and "type how malfunctioned" codes. The reader may recognize that provisions on the B- and D-Sheets of the ALSAR will relate to this sub-record in the ACDF.

NATIONAL STOCK NUMBER RECORD

This record contains information that enables users to cross-reference a National Stock Number (NSN) to a part number, determine each aircraft MDS that uses the NSN, and determine the WUC assigned to the NSN on a given aircraft MDS. In addition, the record contains cost and weight information about an NSN.

SUBSYSTEM RECORDS

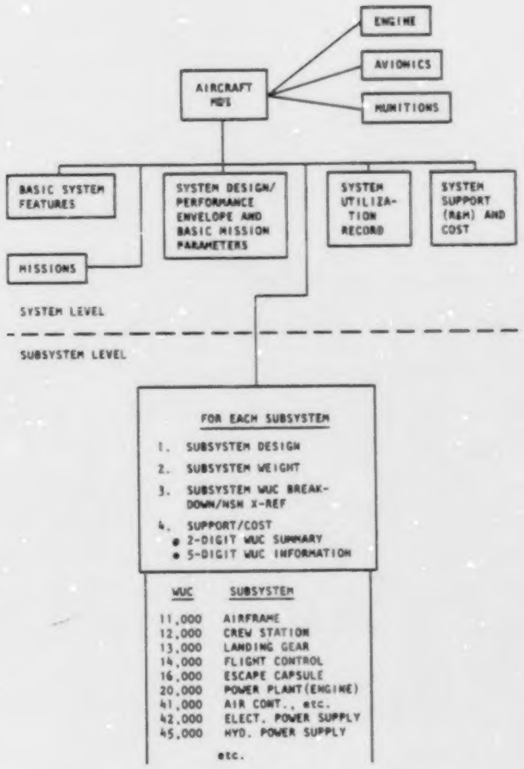
There are nine individual subsystem records in the ACDF. These include airframe, crew station, environmental control, electrical power, flight controls, fuel, hydraulics, landing gear, and power plant. The Avionic Systems Record was discussed earlier. Each subsystem record contains design, weight, and WUC/NSN cross-reference information.

Designers and logisticians could use the subsystem records throughout the design and development activity for a new system acquisition program. The WUC/NSN cross-reference could be used in conjunction with the NSN and Operational Support/Cost Records to evaluate the performance of equipment in various aircraft MDSs.

ON-LINE SYSTEM

The on-line interactive system is designed to permit users to request information selectively and have it displayed on remote CRT terminal screens. The ACDF database is actually structured in accordance with the records in Table 5. Functionally the database may be viewed in a manner similar to that shown in Figure 18. The database is designed to facilitate retrieval of all or part of the information in the database about a particular aircraft MDS.

The ACDF provides design and weight information for each subsystem record. It also provides WUC/NSN cross-reference information. The WUC can then be used to retrieve desired R&M and support cost information about the subsystem.

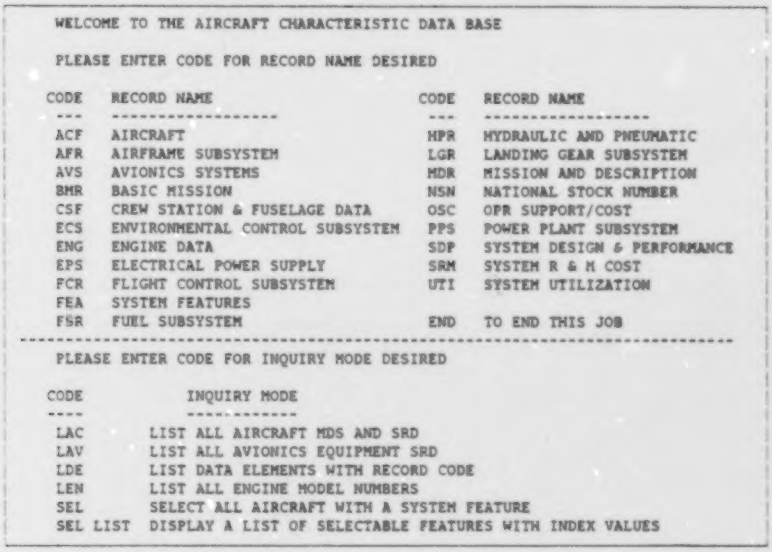


FUNCTIONAL DISPLAY OF ACDF DATABASE

FIGURE 18

RECORD COMMANDS

Once the user is logged on and "READY" appears on the screen, typing the "ACDF" command will retrieve the menu screen shown in Figure 19. The user may then select and enter the CODE for the desired RECORD NAME shown in Figure 19. When the desired record code is entered, the machine will prompt the user to enter the aircraft MDS of interest. When the appropriate MDS is entered, the ACDF will display the requested information on the CRT terminal screen. If the user desires all of the information in the ACDF about a particular MDS, the user would enter "ALL" rather than the code for one record. The system will then display the information in all of the ACDF records for the aircraft MDS specified.



```
    WELCOME TO THE AIRCRAFT CHARACTERISTIC DATA BASE

    PLEASE ENTER CODE FOR RECORD NAME DESIRED

   CODE   RECORD NAME                      CODE   RECORD NAME
    ---   ------------------               ---    ------------------
    ACF   AIRCRAFT                          HPR   HYDRAULIC AND PNEUMATIC
    AFR   AIRFRAME SUBSYSTEM                LGR   LANDING GEAR SUBSYSTEM
    AVS   AVIONICS SYSTEMS                  MDR   MISSION AND DESCRIPTION
    BMR   BASIC MISSION                     NSN   NATIONAL STOCK NUMBER
    CSF   CREW STATION & FUSELAGE DATA      OSC   OPR SUPPORT/COST
    ECS   ENVIRONMENTAL CONTROL SUBSYSTEM   PPS   POWER PLANT SUBSYSTEM
    ENG   ENGINE DATA                       SDP   SYSTEM DESIGN & PERFORMANCE
    EPS   ELECTRICAL POWER SUPPLY           SRM   SYSTEM R & M COST
    FCR   FLIGHT CONTROL SUBSYSTEM          UTI   SYSTEM UTILIZATION
    FEA   SYSTEM FEATURES
    FSR   FUEL SUBSYSTEM                    END   TO END THIS JOB
 ------------------------------------------------------------------------------
    PLEASE ENTER CODE FOR INQUIRY MODE DESIRED

   CODE          INQUIRY MODE
   ----          ------------
    LAC      LIST ALL AIRCRAFT MDS AND SRD
    LAV      LIST ALL AVIONICS EQUIPMENT SRD
    LDE      LIST DATA ELEMENTS WITH RECORD CODE
    LEN      LIST ALL ENGINE MODEL NUMBERS
    SEL      SELECT ALL AIRCRAFT WITH A SYSTEM FEATURE
    SEL LIST DISPLAY A LIST OF SELECTABLE FEATURES WITH INDEX VALUES
```

ACDF RECORD SELECTION DISPLAY SCREEN

FIGURE 19

QUERY COMMANDS

The interactive ACDF system enables the user to query the system for selected information. The CODE for each of several INQUIRY MODES is listed at the bottom of the RECORD SELECTION DISPLAY screen shown in Figure 19.

LAC Command

When the user enters this command, the MDS and Standard Reporting Designator (SRD) will be displayed for each aircraft weapon system for which data exist in the ACDF.

LAV Command

When the user enters this command, the Standard Equipment Nomenclature (SEN) will be displayed for all avionics equipment in the ACDF.

LDE Command

When the user enters the LDE command, an alphabetical listing of all the data elements in the ACDF is displayed showing the record in which it is used. This feature would be particularly useful when the user is interested in one or more specific data elements, but does not know how to retrieve them.

LEN Command

When the user enters the LEN command, a list of all engine model numbers in the Engine Record is displayed.

SEL List Command

The System Features (FEA) record contains data elements that describe basic characteristics of an aircraft weapon system. When the user enters the FEA command, the machine will prompt for the desired aircraft MDS. When the MDS is entered, the machine will display all of the system features that are incorporated on that MDS.

The SEL LIST command, when entered, will display a list of all of the data elements in the System Features Record, along with an Index Number for each feature as shown in Table 6. In addition, the machine will prompt the user to enter the Index Number of interest. When this is accomplished, the machine will display all of the aircraft MDSs that have the selected features.

Some of the system features will require additional information, which the machine will prompt the user to provide. For example, when the user wants to find all aircraft MDSs that have two engines embedded in the fuselage, Index Number 10 is to be entered by the user. The machine would then prompt the user to enter the number of engines. When "2" is entered, the system would display all aircraft MDSs that have two engines embedded in the fuselage.

TABLE 6. SYSTEM FEATURES RECORD

INDEX VALUES OF SYSTEM FEATURES AVAILABLE FOR INQUIRY

INDEX	FEATURE
1	MANUFACTURER
2	AIRCRAFT TYPE
3	PRIMARY MISSION
4	WEIGHT CLASS
5	AIRCRAFT DENSITY
6	NUMBER AIRCREW
7	CREW ESCAPE
8	TYPE ENGINE
9	TOTAL NUMBER OF ENGINES
10	NO OF ENGINES IN FUSELAGE
11	NO OF ENGINE ON FUSELAGE PODS
12	NO OF ENGINE IN WINGS
13	NO OF ENGINE ON WING PODS
14	TYPE ENGINE INSTALLATION
15	ENGINE AUGUMENTED
16	VARIABLE GEOMETRY INLETS
17	THRUST REVERSER
18	WING LOCATION
19	VARIABLE WING GEOMETRY
20	WINGS WITH INTERNAL FUEL TANKS
21	HIGH TECHNOLOGY WING
22	BOUNDARY LAYER CONTROL
23	INDEPENDENT FLIGHT CONTROL
24	FLY-BY-WIRE CONTROL SYSTEM
25	STABILITY/CONTROL SYSTEM
26	ELECTRICAL MULTIPLEX
27	INDEPENDENT ELECTRICAL POWER
28	AUXILLARY POWER UNITS
29	INDEPENDENT HYDRAULIC POWER
30	HYDRAULIC SYSTEM PRESSURE
31	HYDRAULIC DEPENDENT SUBSYSTEMS
32	HF COMMUNICATION SYSTEM
33	VHF COMMUNICATION SYSTEM
34	UHF COMMUNICATION SYSTEM
35	FM COMMUNICATION SYSTEM
36	RADIO NAVIGATION SYSTEM
37	RADAR NAVIGATION SYSTEM
38	A/A RADAR
39	IR NAVIGATION SYSTEM
40	ELECTRO - OPTICAL
41	A/A MISSILES
42	A/G MISSILES
43	CRUISE MISSILES
44	RFS
45	HUD
46	ECM
47	INTERNAL GUNS
48	ON-BOARD MAINTENANCE RECORDER
49	LANDING GEAR TYPE
50	NUMBER OF LANDING GEARS
51	NUMBER OF WHEELS/TIRES
52	DE-ICING
53	ANTI-ICING
54	BLEED AIR SYSTEM
55	TYPE OF OXYGEN
56	AUTO PILOT SYSTEM
57	AUTO PILOT/ILS COUPLED
58	TERRAIN FOLLOWING/TERRAIN AVOIDANCE (TF/TA)
59	AUTO PILOT COUPLED TO TF/TA
60	AUTO PILOT COUPLED TO WEAPON DELIVERY SYSTEM
61	FLIGHT DIRECTOR
62	WEAPON CONTROL SYSTEM
63	EXTERNAL STORE STATIONS
64	CAMERAS ON BOARD
65	AIR-TO-AIR REFUELING
66	WINDSHIELD RAIN REMOVAL
67	AIR TURBINE MOTORS
68	AVIONICS EQUIPMENT COOLING
69	RADAR ALTIMETER
70	CRASH DATA RECORDER
71	EMERGENCY RADIO BEACON
72	COMMAND/CONTROL EQUIPMENT
73	FIRE SUPPRESSION SYSTEM
74	LANDING GEAR KNEELING
75	LANDING GEAR CASTERING/STEERING
76	TAIL BUMPER
77	BUILT-IN-TEST SYSTEMS
78	STRUCTURAL COMPOSITE MATERIAL
79	AVIONICS/WEAPON CONTROL COMPUTER SYSTEM

AVS Versus Equipment

If the user wants to know the avionics equipment installed on a given aircraft MDS, the user would enter AVS and the MDS. If the user wants to know all of the MDS that use a particular piece of avionics equipment, the user would enter AVS and the SEN for the equipment.

Engine Data

Using the Engine Record (ENG), special prompts are available that permit the user (a) to obtain all the data associated with the engine installed on a given aircraft MDS, (b) to find all aircraft MDSs that use a particular engine, and (c) to obtain all the information available about a particular engine.

National Stock Number Data

Using the National Stock Number Record (NSN), special prompts are available (a) to find all aircraft MDSs that use a particular NSN in a specified major subsystem, (b) to find all aircraft MDSs that use a particular manufacturer's part number (MPN) in a specified major subsystem, (c) to find all the major subsystems on a particular aircraft MDS that utilize a specified NSN, and (d) to find all data for a particular NSN installed in a specified major subsystem and aircraft MDS.

ON-LINE CRT SCREENS

Data retrieved from the ACDF system will be displayed on remote CRT terminal screens. Many of the screens for the ACDF records are included in Appendix B. The data would be displayed exactly as shown for each record. When all of the available data will not fit on a screen image, the continued data would automatically wraparound to the next screen.

HARD COPY DATA

The on-line system permits users to request hard copy printouts of ACDF data. The ACDF Users Guide provides instructions for requesting batch printouts. The outputs will be displayed in the same form and content as shown in Appendix B.

SECTION V

AFOTEC AND COMBAT DATA

GENERAL

The UDB development program effort covered in the previous sections was accomplished by Clemson University. Two additional efforts that were relatively small in scope were accomplished as part of the UDB development program. The first was a study of the OT&E requirements for a new weapon system, which was accomplished by the BDM Corporation. The second was a study of combat data sources, which was accomplished by the McDonnell-Douglas Astronautics Company

OT&E REQUIREMENTS

OBJECTIVES AND APPROACH

The objectives of this effort were, first, to investigate the data input and output requirements of the Air Force Operational Test and Evaluation Center (AFOTEC) during an aircraft OT&E suitability assessment and, second, to determine the extent to which the prototype UDB would satisfy these needs. Two major tasks were undertaken to satisfy these objectives. The first was to identify and evaluate all of the data input requirements and data output products of the standard AFOTEC computer programs used in an aircraft OT&E suitability assessment. The second task was to compare the ALSAR and ACDF capabilities of the UDB with the results of the first task.

AFOTEC INPUTS AND OUTPUTS

Table 7 lists the primary systems used by AFOTEC. The data elements required for input to each one of these systems were defined. Similarly, the output products of each one of these systems were defined, and the individual data elements of each product were identified. A matrix was developed for both input requirements and output products, showing individual data elements by source and system used.

TABLE 7. AFOTEC SYSTEMS USED

INPUT REQUIREMENTS	OUTPUT PRODUCTS	SYSTEM USED	
X		D056	- AFLC Product Performance System
X		MDCS	- Maintenance Data Collection System
X		SEDS	- System Effectiveness Data System
X		MILAP	- Maintenance Information Logically Analyzed and Presented
X		MMICS	- Maintenance Management Information and Control System
X		CDEP	- Common Data Extraction Programs
X	X	MISEDS	- Machine Independent Systems Effectiveness Data System
X	X	OMNIVORE	- AFTEC Data Base Access and Analysis System
X	X	COO	- Cost of Ownership Model
X	X	LCOM	- Logistics Composite Model
X	X	MCSP	- Mission Completion Success Probability Model

UDB CAPABILITY

Using the matrices developed in the task above, a comprehensive list of data elements was prepared to define the specific input and output requirements of AFOTEC. This list was compared with the ALSAR and ACDF system capability of the prototype UDB. As a result, approximately 80 data elements were identified that could not be supported by the existing UDB.

OT&E RESULTS

The results of the OT&E requirements effort were documented by the BDM Corporation and delivered to the Air Force in April 1982. The objectives of this effort were fully satisfied, and the results will be used in future UDB development efforts.

COMBAT REQUIREMENTS

OBJECTIVES AND APPROACH

The objective of this effort was to investigate the feasibility of a combat unified retrieval system and its incorporation into the UDB system. The approach included tasks (a) to investigate and identify all significant sources of data on maintenance and logistics support in combat environments and also to identify available combat data retrieval and generating technologies, (b) to collect a representative sample of combat data from available identified sources, (c) to analyze potential approaches and design requirements, including software, necessary for the Air Force to obtain, store, and access this combat information, and (d) to outline corresponding detailed design requirements, for a combat database, that are compatible with the prototype UDB, and that will allow for combat information retrieval.

SUMMARY OF RESULTS

The results of this effort were documented by McDonnell-Douglas Astronautics Company and delivered to the Air Force in March 1983. The report provides a discussion of available combat data sources and related information, and provides sample combat data that could be included in a Combat Unified Retrieval System (CURS).

The report concluded that it would be possible to use the UDB system as the baseline for the development of a CURS. The detailed design requirements for a CURS and UDB interface were not defined.

SECTION VI

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE DEVELOPMENT

CONCLUSIONS

The UDB will satisfy many of the objectives discussed in Section II and shown in Figure 1. Progress to date has demonstrated that it is technically feasible to achieve all of the objectives of the conceptual closed-loop UDB system. While much development work remains to be accomplished, the ALSAR and ACDF systems provide a solid foundation on which future development efforts can build.

The ALSAR is a fully automated and advanced system that is being used in a production mode to support the defensive avionics portion of the B-1B program. Since this is its first application, the system has not yet been validated. The ALSAR has performed satisfactorily to date, and numerous problems in the system have been corrected. As the B-1B program progresses, the ALSAR system will be increasingly validated.

The ACDF system has been initially developed, but is far behind the ALSAR in terms of verification testing. All of the ACDF features covered in Section IV are available in the prototype, but additional development work will be needed before it is ready to be implemented by the Air Force.

FUTURE RESEARCH AND DEVELOPMENT

Future UDB development efforts should include tasks necessary to fully achieve the closed-loop UDB objectives discussed in Section II and shown in Figure 1. In addition, work to enhance the overall UDB system should be accomplished in future efforts. Specific recommendations for future R&D work are presented in the following paragraphs.

ALSAR

Production Support and Software Maintenance

Production support to the B-1B, and possibly other development programs, should continue using the existing ALSAR system. Until such time that the existing ALSAR is fully validated, this effort will require software maintenance support to fix problems when they are discovered. If program users are operating remotely from the host ALSAR facility, production support will be required from the host.

From the standpoint of the UDB development program, continued support to programs using the existing ALSAR is necessary to validate the advanced features of the system. From the standpoint of Air Force acquisition programs, the existing ALSAR system fully satisfies current Air Force and DOD requirements and is available now as Government property.

Redesign to Support MIL-STD-1388-2A

The ALSAR was designed and developed using DARCOMP 750-16 as the baseline. When MIL-STD-1388-2A is approved, the ALSAR system should be redesigned to support this new MIL-STD, while retaining the advanced features currently available in the system. This is a major task that will require significant redesign of the database architecture, with corresponding ripple effects throughout the on-line system, batch system, reporting system, and documentation.

Transportability

The ALSAR Is currently designed to utilize the Integrated Database Management System (IDMS) developed by Cullinet Corporation. As a result, the ALSAR system is transportable only to locations that have a compatible operating hardware and software environment.

Future UDB development efforts should include an investigation of the technical and economic advantages and disadvantages of system transportability. The effort should consider alternatives that range from maximum to minimum transportability, and evaluate the global impact of basic changes in requirements by the Government, standardization desired by the Government, achieving closed-loop UDB objectives, and other relevant factors.

Word-Processing Capability

The need exists for an ALSAR word-processing capability for narrative data in the LSAR database. Future UDB efforts should include a task to investigate and develop an optimal and generic interface capability between the ALSAR and currently available word-processing systems. This capability would be a useful and cost-effective tool for those responsible for accomplishing LSA/LSAR on any acquisition program.

Functional Users Guide

There is a critical need for a detailed manual to instruct functional area users on the use of the ALSAR in the LSA process for any given weapon system or equipment program. While the DED, DEI, and Users Guide were developed for the ALSAR, a much more detailed LSA manual is needed. Although MIL-STD-1388-2A provides an enormous amount of useful information, it does not adequately address this specific need. The Naval Air Systems Command (NAVAIR) 00-25-401, "Maintenance Planning and Analysis Program Guide," is an excellent example of what is needed.

ACDF

The ACDF system described in Section IV has been initially developed and tested, but has not been validated. The system represents a good start, but additional development work is needed to satisfy objectives 1, 2, 3 and 8 shown in Section II, Figure 1.

Load Data

In future UDB efforts, the ACDF should be loaded with actual data for several aircraft MDSs. If the Air Force plans to use the UDB in the future to support a specific new aircraft weapon system acquisition program, the ACDF should be loaded with data about similar aircraft MDSs that are currently operational.

Interface Programs

The capability is needed to enable users to identify a BCS in the ACDF and to have the system automatically produce a BCS output tape in ALSAR format. This capability addresses Objective 3 shown in Figure 1 and discussed in Section II. The programs required to achieve this capability would also satisfy Objective 7 shown in Figure 1. Future UDB development efforts should include this important work. In addition, continued work is needed to refine and test the interface programs to process and load D056E and VAMOSC data.

Trend Data Graphics

Although the on-line retrieval and display capabilities discussed in Section IV have been developed, there is a need for the capability for on-line retrieval and display of R&M trend data with graphics.

OT&E INTERFACE

The prototype UDB effort included an investigation of AFOTEC requirements for aircraft suitability testing during OT&E. Future UDB development efforts should implement the findings of this effort. Specifically, the ALSAR and ACDF should be modified to provide, as a minimum, the additional data elements identified in the investigation of AFOTEC requirements.

INSTALL AND DEMONSTRATE UDB

In future UDB development efforts the current ALSAR and ACDF systems should be installed, tested, and demonstrated in a Government computer facility at Wright-Patterson AFB, Ohio. Subsequently, modifications and enhancements should be installed, tested, and demonstrated. Software maintenance should also be provided throughout the UDB development effort.

COMPUTER-AIDED DESIGN (CAD)

The ACDF and ALSAR system of the UDB represent significant computer tools to aid in the design and systems engineering process. The UDB does not accomplish the function of modern CAD systems used to explore alternatives and to establish the actual design of (a) airframe structure, mold lines, compartments, and assemblies, (b) electronic circuit boards and components, and (c) the many other uses for primary hardware, support equipment, and facility design.

In future UDB efforts it is recommended that R&D be conducted to investigate alternative approaches for developing a generic interface between the UDB and various CAD systems currently available. The purpose of such an interface would be to provide an improved mechanism whereby useful R&M and logistics support related information is provided to the design engineer such that logistics factors may influence design activity and decisions that occur in the early planning and throughout the design process. Following this effort, the development of promising alternatives should be pursued.

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ABBREVIATIONS

ACDF - Aircraft Characteristics Data File
ADP - Automated Data Processing
AFB - Air Force Base
AFG - Air Force Guide
AFHRL - Air Force Human Resources Laboratory
AFLC - Air Force Logistics Command
AFR - Air Force Regulation
AFOTEC - Air Force Operational Test and Evaluation Center
ALSAR - Automated Logistics Support Analysis Record
ANSI - American National Standard Institute
BCS - Baseline Comparison System
CAD/CAM - Computer-Aided Design/Computer-Aided Manufacturing
CER - Cost Estimating Relationship
CMRS - Calibration and Measurement Requirements Summary
COBOL - Common Business Oriented Language
CRT - Cathode Ray Tube
CSEL - Consolidated Support Equipment List
DARCOM - U.S. Army Materiel Development and Readiness Command
DARCOMP - DARCOM Pamphlet
DED - Data Element Description
DEI - Data Entry Instructions
DID - Data Item Description
DOD - Department of Defense

DODD - Department of Defense Directive

FMECA - Failure Modes, Effects, and Criticality Analysis

HDR - Historical Data Repository

How Mal - How Malfunctioned

IDMS - Integrated Database Management System

ILS - Integrated Logistics Support

LCOM - Logistics Composite Model

LRU - Line Replaceable Unit

LSA - Logistics Support Analysis

LSACN - Logistics Support Analysis Control Number

LSAR - Logistics Support Analysis Record

MDCS - Maintenance Data Collection System

MDS - Mission, Design, and Series

MIL-STD - Military Standard

MMH/FH - Maintenance Manhours per Flying Hour

MOD-METRIC - AFLC Spares Provisioning Model

MPN - Manufacturer's Part Number

MRSA - DARCOM Materiel Readiness Support Activity

NRLA - Network Repair Level Analysis

NSN - National Stock Number

O&S - Operation and Support

OT&E - Operational Test and Evaluation

PER - Parametric Estimating Relationship

PMD - Program Management Directive

PPFS - Product Performance Feedback System

PPL - Provisioning Parts List

R&M - Reliability and Maintainability

SEN - Standard Equipment Nomenclature

Seq. No. - Line Sequence Number

SERD - Support Equipment Recommendations Document

SRD - Standard Reporting Designator

SRU - Shop Replaceable Unit

SSC - Skill Specialty Code

TSO - Time Sharing Option

UC - Update Code

UDB - Unified Database

VAMOSC - Visibility and Management of Operational Support Costs

VSAM - Virtual Storage Access Method

WBS - Work Breakdown Structure

WUC - Work Unit Code

APPENDIX A

ALSAR DATA SHEETS

This appendix contains the data sheets used by the ALSAR system. Much of the discussion in Section III refers to these sheets.

DATA SHEET A: OPERATIONS AND MAINTENANCE REQUIREMENTS

DATE: ______________ PAGE ______ OF ______

SUBMITTED BY: ______________ EXT: ______

CARD NUMBER	1 LSACN FGC/WBS/WUC	2 END ITEM ACRONYM CODE	3 SERVICE DES	4 FSCM	5 ALTERN ACTION	6 REV CODE	7 DATA STATUS	8 DWG CLASS	9 SERIAL NUMBER EFFECTIVITY		10 DATE				UPDATE CODE
									FROM	TO	YR	MO	DA		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25	26	27 28 29 30 31	32	33	34	35 36 37	38 39 40 41 42 43 44 45 46 47	48 49 50 51 52 53 54 55 56 57	58 59	60 61	62 63	64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
A 0 1															

CARD NUMBER	LSACN	1 ITEM NAME	2 ITEM DESIGNATOR CODE				3 CONVERSION FACTOR		UPDATE CODE
			TYPE	MODEL	SERIES	SUFFIX DESIGNATOR			
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34	35 36 37 38 39 40 41	42 43 44 45 46 47 48 49 50 51	52 53	54 55 56 57 58 59 60	61 62 63 64	65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
A 0 2									

CARD NUMBER	LSACN	1 MFR PART NUMBER	LRNC	2 FSCM	3 DRAWING NUMBER	LRNC	4 FSCM		UPDATE CODE
1 2 3 4	5 5 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	32	33 34 35 36 37	38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	54	55 56 57 58 59	60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
A 0 3 A									
A 0 3 B									

MEASUREMENT BASE

CARD NUMBER	LSACN	1 ANNUAL OPERATING REQUIREMENTS	MEAS BASE	ANNUAL OPERATING REQUIREMENTS	MEAS BASE	ANNUAL OPERATING REQUIREMENTS	MEAS BASE	2 ANNUAL NUMBER OF MISSIONS	ANNUAL OPERAT DAYS 3	4 MEAN MISSION DURATION	MEAS BASE	5 MODE OF TRANSPORT	6 MISSION COMPLETION SUCCESS PROBABILITY		U C
													REQUIRED	ACHIEVED	
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21	22	23 24 25 26 27 28	29	30 31 32 33 34 35	36	37 38 39 40 41 42	43 44 45	46 47 48 49 50	51	52 53 54 55	56 57 58 59 60 61 62 63 64 65 66 67	68 69 70 71 72 73 74 75 76 77 78 79	80
A 0 4															

ORGANIZATIONAL MAINTENANCE / ON EQUIPMENT MAINTENANCE - AIR FORCE / AVUM - ARMY 1 MAINTENANCE REQUIREMENTS (RECORD TO TENTHS OF HOURS)

CARD NUMBER	LSACN	A NUMBER OF SYSTEMS SUPP	B DAILY INSP		C PREOPERATIVE INSP		D POST OPERATIVE INSP		E HOME STATION CHECK		F INTERMEDIATE INSP			U C
			MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21	22 23 24 25 26	27 28 29 30 31	32 33 34 35 36	37 38 39 40 41	42 43 44 45 46	47 48 49 50 51	52 53 54 55 56	57 58 59 60 61	62 63 64 65 66	67 68 69 70 71	72 73 74 75 76 77 78 79	80
A 0 5														

CARD NUMBER	LSACN	G PERIODIC INSP		H UNSCHEDULED MAINT		I TURNAROUND		J MISSION PROFILE CHANGE		K M/H PER HOUR		L ANNUAL MAINT M/H			UPDATE CODE
		MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	SCHEDULED	UNSCHEDULED	SCHEDULED	UNSCHEDULED		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62 63 64 65	66 67 68 69 70 71	72 73 74 75 76 77	78 79	80
A 0 6															

INTERMEDIATE/DIRECT SUPPORT MAINTENANCE/AFLOAT/THIRD ECHELON/OFF EQUIPMENT - AIR FORCE/AVIM - ARMY 1 MAINTENANCE REQUIREMENTS (RECORDED TO TENTHS OF HOURS)

CARD NUMBER	LSACN	A NUMBER OF SYSTEMS SUPP	B HOME STATION CHECK		C INTERMEDIATE INSP		D PERIODIC INSP		E M/H PER HOUR		F ANNUAL MAINT M/H			U C
			MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	MEAN ELAPSED TIME	MEAN MAN-HRS	SCHEDULED	UNSCHEDULED	SCHEDULED	UNSCHEDULED		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21	22 23 24 25 26	27 28 29 30 31	32 33 34 35 36	37 38 39 40 41	42 43 44 45 46	47 48 49 50 51	52 53 54 55 56	57 59 59 60 61	62 63 64 65 66 67	68 69 70 71 72 73	74 75 76 77 78 79	80
A 0 7														

DEPOT MAINTENANCE 1 MAINTENANCE REQUIREMENTS (RECORD TO TENTHS OF HOURS)

CARD NUMBER	LSACN	A NUMBER OF SYSTEMS SUPP	B M/H PER HOUR		C ANNUAL MAINT M/H			U C
			SCHEDULED	UNSCHEDULED	SCHEDULED	UNSCHEDULED		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21	22 23 24 25 26	27 28 29 30 31	32 33 34 35 36 37	38 39 40 41 42 43	44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
A 0 8								

CARD NUMBER	LSACN	1 SYSTEM / END ITEM AVAILABILITY (RECORD IN PERCENT)													U C
		A PARTIAL MISSION CAPABLE (PMC)			B PMC MAINTENANCE (PMCM)			C PMC SUPPLY (PMCS)			D PMC BOTH MAINT & SUPPLY				
		1 REQUIRED	2 PREDICTED	3 MEASURED	1 ALLOCATED	2 PREDICTED	3 MEASURED	1 ALLOCATED	2 PREDICTED	3 MEASURED	1 ALLOCATED	2 PREDICTED	3 MEASURED		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19	20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35	36 37 38 39	40 41 42 43	44 45 46 47	48 49 50 51	52 53 54 55	56 57 58 59	60 61 62 63	64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
A 0 9															

CARD NUMBER	LSACN	1 SYSTEM / END ITEM AVAILABILITY (CONTINUED)						2 NOT MISSION CAPABLE (NMC)								U C
		A FULLY MISSION CAPABLE (FMC)			B MAINT DOWN TIME PER SORTIE (HRS)			A NOT MISSION CAPABLE		B NMC MAINTENANCE		C NMC SUPPLY		D NMC BOTH		
		1 REQUIRED	2 PREDICTED	3 MEASURED	1 REQUIRED	2 PREDICTED	3 MEASURED	1 PREDICTED	2 MEASURED	1 PREDICTED	2 MEASURED	1 PREDICTED	2 MEASURED	1 PREDICTED	2 MEASURED	
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19	20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35	36 37 38 39	40 41 42 43	44 45 46 47	48 49 50 51	52 53 54 55	56 57 58 59	60 61 62 63	64 65 66 67	68 69 70 71	72 73 74 75 76 77 78 79 80
A 1 0																

DATA SHEET AI: SUPPLEMENTAL OPERATIONS AND MAINTENANCE REQUIREMENTS

DATE ______________ PAGE ______ OF ______

SUBMITTED BY ____________________ EXT ______

CARD NUMBER	1 2 3 4	A 1 1 A
1 LSACN	5 6 7 8 9 10 11 12 13 14 15	
2 ESTIMATED UNIT COST (FLYAWAY)	A NON-RECURRING	16 17 18 19 20 21 22 23 24 25
	B RECURRING	26 27 28 29 30 31 32 33 34 35
3 ACTUAL UNIT COST (FLYAWAY)	A NON-RECURRING	36 37 38 39 40 41 42 43 44 45
	B RECURRING	46 47 48 49 50 51 52 53 54 55
4 ESTIMATED O & S COST (ANNUAL)		56 57 58 59 60 61 62 63 64 65
5 ACTUAL O & S COST (ANNUAL)		66 67 68 69 70 71 72 73 74 75
6 BASE YEAR		76 77
		78 79
UPDATE CODE		80

CARD NUMBER	1 2 3 4	A 1 2 B
1 LSACN	5 6 7 8 9 10 11 12 13 14 15	
2 INITIAL SUPPORT EQUIPMENT COST	A COMMON S.E	16 17 18 19 20 21 22 23 24 25
	B PECULIAR S.E.	26 27 28 29 30 31 32 33 34 35
3 INITIAL AND REPLENISHMENT SPARES COST	A. INITIAL SPARES	36 37 38 39 40 41 42 43 44 45
	B REPLENISHMENT SPARES	46 47 48 49 50 51 52 53 54 55
4 BASE MATERIAL COST		56 57 58 59 60 61 62 63 64 65
5 BASE PETROLEUM, OIL AND LUBRICANTS (POL) COST		66 67 68 69 70 71 72 73 74 75
6 BASE YEAR		76 77
		78 79
U.C.		80

CARD NUMBER	1 2 3 4	A 1 3 A A 1 3 B
1 LSACN	5 6 7 8 9 10 11 12 13 14 15	
BASE LEVEL (CARD A13A) DEPOT LEVEL (CARD A13B)		
2 TECHNICAL PUBLICATIONS COST AND QUANTITY	A TOTAL COST	16 17 18 19 20 21 22 23 24 25
	B NUMBER OF PAGES	26 27 28 29 30 31 32 33
	C NUMBER OF ILLUSTRATIONS	34 35 36 37 38 39 40 41 42 43
3 TRAINING COST	A PERSONNEL	44 45 46 47 48 49 50 51 52 53
	B MATERIAL/EQUIPMENT	54 55 56 57 58 59 60 61 62 63
4 NUMBER OF PEOPLE TRAINED		64 65 66 67
5 NUMBER OF NEW/MOD SKILLS		68 69 70 71
6 BASE YEAR		72 73
		74 75 76 77 78 79
U.C.		80

CARD NUMBER	1 2 3 4	A 1 4 A
1 LSACN	5 6 7 8 9 10 11 12 13 14 15	
2 PROGRAMMED DEPOT MAINTENANCE COST (PDM)		16 17 18 19 20 21 22 23 24 25
3 COMPONENT REPAIR/OVERHAUL COST		26 27 28 29 30 31 32 33 34 35
4 INITIAL DEPOT SUPPORT EQUIPMENT COST		36 37 38 39 40 41 42 43 44 45
5 DEPOT FACILITIES COST		46 47 48 49 50 51 52 53 54 55
6 BASE LEVEL FACILITIES COST		56 57 58 59 60 61 62 63 64 65
7 BASE YEAR		66 67
		68 69 70 71 72 73 74 75 76 77 78 79
U.C.		80

CARD NUMBER	1 2 3 4	A 1 5 A	
1 LSACN	5 6 7 8 9 10 11 12 13 14 15		
2 SUPPORT GENERAL MMH/FH	A ORGANIZATIONAL LEVEL	1 ALLOC	16 17 18 19
		2 PRED.	20 21 22 23
		3 MEAS.	24 25 26 27
	B INTERMEDIATE LEVEL	1 ALLOC	28 29 30 31
		2 PRED.	32 33 34 35
		3 MEAS.	36 37 38 39
3. SCHEDULED AND SPECIAL INSPECTIONS (03 & 04) MMH/FH	A ORGANIZATIONAL LEVEL	1 ALLOC.	40 41 42 43
		2. PRED.	44 45 46 47
		3. MEAS.	48 49 50 51
	B. INTERMEDIATE LEVEL	1. ALLOC.	52 53 54 55
		2 PRED.	56 57 58 59
		3 MEAS.	60 61 62 63
			64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
U.C.			80

CARD NUMBER	1 2 3 4	A 1 6 A	
1 LSACN	5 6 7 8 9 10 11 12 13 14 15		
2 PREVENTIVE MMH/FH	A ORGANIZATIONAL LEVEL	1 ALLOC	16 17 18 19
		2 PRED	20 21 22 23
		3 MEAS	24 25 26 27
	B INTERMEDIATE LEVEL	1 ALLOC	28 29 30 31
		2 PRED	32 33 34 35
		3 MEAS	36 37 38 39
3 CORRECTIVE MMH/FH	A ORGANIZATIONAL LEVEL	1. ALLOC.	40 41 42 43
		2. PRED	44 45 46 47
		3. MEAS.	48 49 50 51
	B INTERMEDIATE LEVEL	1. ALLOC.	52 53 54 55
		2 PRED	56 57 58 59
		3 MEAS	60 61 62 63
			64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
U.C.			80

CARD NUMBER	1 2 3 4	A 1 7 A	
1 LSACN	5 6 7 8 9 10 11 12 13 14 15		
2 TOTAL BASE LEVEL MMH/FH	A ORGANIZATIONAL LEVEL	1 ALLOC	16 17 18 19
		2 PRED	20 21 22 23
		3 MEAS	24 25 26 27
	B INTERMEDIATE LEVEL	1 ALLOC	28 29 30 31
		2 PRED	32 33 34 35
		3 MEAS	36 37 38 39
3 MEAN MANHOURS TO REPAIR (MMHTR)		1 ALLOC	40 41 42 43
		2. PRED	44 45 46 47
		3 MEAS	48 49 50 51
4 MAXIMUM TIME TO REPAIR (ELAPSED TIME)	A ORGANIZATIONAL LEVEL	1 ALLOC	52 53 54 55
		2 PRED	56 57 58 59
		3 MEAS	60 61 62 63
	B INTERMEDIATE LEVEL	1 ALLOC	64 65 66 67
		2 PRED	68 69 70 71
		3 MEAS	72 73 74 75
			76 77 78 79
U.C.			80

CARD NUMBER	1 2 3 4	A 1 8 A	
1 LSACN	5 6 7 8 9 10 11 12 13 14 15		
2 DEPOT MMH/FH	A PROGRAMMED DEPOT MAINTENANCE	1 ALLOC	16 17 18 19
		2 PRED	20 21 22 23
		3 MEAS	24 25 26 27
	B COMPONENT REPAIR/OVERHAUL	1 ALLOC	28 29 30 31
		2 PRED	32 33 34 35
		3 MEAS	36 37 38 39
3 MISSION RECONFIGURATION TIME	A MEAN ELAPSED TIME	1 REQUIRED	40 41 42 43 44
		2 PREDICTED	45 46 47 48 49
		3 MEASURED	50 51 52 53 54
	B 90TH PERCENTILE	1 REQUIRED	55 56 57 58 59
		2 PREDICTED	60 61 62 63 64
		3 MEASURED	65 66 67 68 69
	C MEAN CREW SIZE		70 71 72
			73 74 75 76 77 78 79
U.C.			80

CARD NUMBER	1 2 3 4	A 1 9 A	
1 LSACN	5 6 7 8 9 10 11 12 13 14 15		
2 ANALYTICAL CONDITION INSPECTION (ACI)	A MEAN ELAPSED TIME		16 17 18 19 20
	B MEAN MANHOURS		21 22 23 24 25
3 QUICK TURNAROUND TIME	A ELAPSED TIME (MINUTES)	1 REQUIRED	26 27 28 29 30
		2 PREDICTED	31 32 33 34 35
		3 MEASURED	36 37 38 39 40
	B MAINTENANCE MANMINUTES	1 REQUIRED	41 42 43 44 45
		2. PREDICTED	46 47 48 49 50
		3 MEASURED	51 52 53 54 55
	C CREW SIZE		56 57 58
	D AIRCREW MANMINUTES	1 REQUIRED	59 60 61 62 63
		2. PREDICTED	64 65 66 67 68
		3. MEASURED	69 70 71 72 73
			74 75 76 77 78 79
U.C.			80

DATA SHEET B: ITEM RELIABILITY(R) AND MAINTAINABILITY(M) CHARACTERISTICS

DATE ________ PAGE _____ OF _____

SUBMITTED BY __________ EXT _____

ALTERNATE LSACN

CARD NUMBER B01 — 1 LSACN (FGC/WBS/WUC) — 2 END ITEM ACRONYM CODE — 3 SERVICE DESIGNATOR — 4 FSCM — 5 ALTERNATE ACTION — 6 REV CODE — 7 DATA STATUS — 8 DWG CLASS — 9 SERIAL NUMBER EFFECTIVITY: FROM, TO — 10 DATE: YR, MO, DA — UPDATE CODE

CARD NUMBER B02 — LSACN — 1 ITEM NAME — 2 ITEM DESIGNATOR CODE: TYPE, MODEL, SERIES, SUFFIX — 3 CONVERSION FACTOR — U C

Card Number B03A, B03B — LSACN — 1 MFR PART NUMBER — 2 FSCM — 3 DRAWING NUMBER — 4 FSCM — U C

CARD NUMBER B04A — LSACN — 1 MAINTAINABILITY CONSIDERATIONS A-ADEQUATE, N-NOT ADEQUATE: STANDARD, ACCESSIBILITY, MAINT EASE, SAFETY, TEST POINTS, SKILLS, TRAINING, COMP. REMOVAL, PKG/TRANS, FAULT LOCATION, LABELING, SELF-PROTECT, CORROSION/ENVT CONT., SUPPORT EQUIPMENT, PECULIAR TOOLS, FACILITIES — 2 BUILT IN TEST (BIT)/CENTRAL INTEGRATED TEST SYSTEM (CITS) ADEQUACY: A FAULT DETECTION (%): 1 REQUIRED, 2 PREDICTED, 3 MEASURED; B FAULT ISOLATION (%): 1 REQUIRED, 2 PREDICTED, 3 MEASURED; C FALSE FAULT INDICATION (%): 1 REQUIRED, 2 PREDICTED, 3 MEASURED — 3 ICS CODE — 4 ICC — 5 LRU/SRU — U C

CARD NUMBER B04B — LSACN — 1 RELIABILITY: A MEAN TIME BETWEEN REMOVALS - MTBR: 1 ALLOCATED, 2 PREDICTED, 3 MEASURED; B MEAN TIME BETWEEN CORRECTIVE MAINTENANCE - MTBM: 1 ALLOCATED, 2 PREDICTED, 3 MEASURED; C INHERENT MALFUNCTION - TYPE 1 MTBM: 1 ALLOCATED, 2 PREDICTED, 3 MEASURED — MEAS BASE — U C

CARD NUMBER B04C — LSACN — 1 RELIABILITY (CONTINUED): A INDUCED MALFUNCTION - TYPE 2 MTBM: 1 PREDICTED, 2 MEASURED; B NO DEFECT - TYPE 6 MTBM: 1 PREDICTED, 2 MEASURED; C PREVENTIVE (SCHEDULED REMOVAL) MTBM: 1 PREDICTED, 2 MEASURED — MEAS BASE — 2 MEAN TIME BETWEEN MAINTENANCE ACTIONS - MTBMA — 3 RATIO OF MAINTENANCE ACTIONS TO MAINTENANCE EVENTS — U C

CARD NUMBER B05A — LSACN — 1 FAILURE ANALYSIS: A FAILURE MODE — TYPE — B FAILURE SYMPTOMS — C FAILURE EFFECT AND CRITICALITY — D % OF MTBM — E MTTR ALLOCATED — F TASK CODE — U C

CARD NUMBER B06A — LSACN — 1 RELIABILITY CENTERED MAINTENANCE ANALYSIS (APPENDIX C): A LOGIC RESULTS (FIGURE C-2): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20; B DISPOSITION: C D V S; C TASK ANALYSIS DOCUMENTATION: FGC/WBS/WUC, TASK CODE — U C

Card Number B07A — LSACN — 1 ITEM FUNCTION — SEQ NO — U C

Card Number B08A — LSACN — 1 QUALITATIVE AND QUANTITATIVE MAINTAINABILITY REQUIREMENTS (NUCLEAR HARDENED CHARACTERISTICS, FAIL SAFE ENVIRONMENTAL, ETC.) — SEQ NO — U C

Card Number B09A — LSACN — 1 MAINTENANCE CONCEPT — SEQ NO — U C

Card Number B10A — LSACN — 1 REMARKS / RECOMMENDATIONS / JUSTIFICATION — SEQ NO — U C

DATA SHEET B: ITEM RELIABILITY(R) AND MAINTAINABILITY(M) CHARACTERISTICS (SUPPLEMENTAL DATA AT THE TWO DIGIT WORK UNIT CODE LEVEL)

DATE: ______________ PAGE ______ OF ______

SUBMITTED BY ______________________ EXT: ______

CARD NUMBER	LSACN	1 BASE LEVEL MAINTENANCE MANHOURS PER FLIGHT HOUR													UPDATE CODE
		A ORGANIZATIONAL LEVEL (ON-EQUIPMENT)						B INTERMEDIATE LEVEL (OFF-EQUIPMENT)							
		1 PREVENTIVE			2 CORRECTIVE			1 PREVENTIVE			2 CORRECTIVE				
		A ALLOC	B PRED	C MEAS	A ALLOC	B PRED	C MEAS	A ALLOC	B PRED	C MEAS	A ALLOC	B PRED	C MEAS		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19	20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35	36 37 38 39	40 41 42 43	44 45 46 47	48 49 50 51	52 53 54 55	56 57 58 59	60 61 62 63	64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
B 1 1 A															

CARD NUMBER	LSACN	1 BASE LEVEL MAINTENANCE MANHOURS PER FLIGHT HR. (CON'T)						2. BASE LEVEL					3. DEPOT MAINTENANCE MANHOURS PER FLIGHT HOUR			4 MEAN TIME TO REPAIR (MTTR)		UC
		A TOTAL BASE LEVEL MMH/FH						A. MEAN MAINTENANCE MANHOURS										
		1 PREVENTIVE			2 CORRECTIVE			1 PREVENTIVE		2. CORRECTIVE								
		A ALLOC	B PRED	C MEAS	A ALLOC	B PRED	C MEAS	A PRED	B. MEAS	A ALLOC	B PRED	C. MEAS.	A. ALLOC	B PRED	C MEAS	A PRED	B MEAS.	
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19	20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35	36 37 38 39	40 41 42 43	44 45 46 47	48 49 50 51	52 53 54 55	56 57 58 59	60 61 62 63	64 65 66 67	68 69 70 71	72 73 74 75	76 77 78 79	80
B 1 2 A																		

CARD NUMBER	LSACN	1 FAILURE CAUSE	SEQ NO	UC
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80
B 1 3 A				

CARD NUMBER	LSACN	1 FAILURE DETECTION METHOD	SEQ NO	UC
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80
B 1 4 A				

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

DATA SHEET C: TASK ANALYSIS SUMMARY

DATE ____________ PAGE ______ OF ______

SUBMITTED BY ____________ EXT ______

CARD NUMBER	1 LSACN (FGC/WBS/WUC)	2 END ITEM ACRONYM CODE	3	4 FSCM	5 ALTERN ACTION	6 REV CODE	7 DATA IN STATUS	8 DRAWING CLASS	9 SERIAL NUMBER EFFECTIVITY FROM	9 SERIAL NUMBER EFFECTIVITY TO	10 DATE YR	MO	DA		UPDATE CODE
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25	26	27 28 29 30 31	32	33	34	35 36 37	38 39 40 41 42 43 44 45 46 47	48 49 50 51 52 53 54 55 56 57	58 59	60 61	62 63	64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
C 0 1															

CARD NUMBER	LSACN	1 ITEM NAME	2 ITEM DESIGNATOR CODE TYPE	MODEL	SERIES	SUFFIX	3 CONVERSION FACTOR		U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34	35 36 37 38 39 40 41	42 43 44 45 46 47 48 49 50 51	52 53	54 55 56 57 58 59 60	61 62 63 64	65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
C 0 2									

CARD NUMBER	LSACN	1 MANUFACTURER'S PART NUMBER	LRNC	2 FSCM	3 DRAWING NUMBER	LRNC	4 FSCM	5 NEXT HIGHER ASSEMBLY PART NUMBER	LRNC		U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	32	33 34 35 36 37	38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	54	55 56 57 58 59	60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	76	77 78 79	80
C 0 3 A											
C 0 3 B											

CARD NUMBER	LSACN	TASK SUMMARY 1 TASK CODE		MAINTENANCE LEVEL						2 TASK FREQUENCY TO (THOUSAND)	3 MEAS BASE	4 ELAPSED TIME (REC TO 100ths OF HRS) A ALLOCATED	B PREDICTED	C MEASURED	5 PR/O CARD	PERSONNEL SUMMARY 6 SKILL LEVEL	7 SKILL SPECIALTY CODE	8 SS EVAL	9 NO OF MEN PER TASK	10 MAN HOURS (REC TO 100ths OF HRS) A ALLOCATED	B PREDICTED	C MEASURED	11 REQMTS FOR FACILITY	TRN EQP	SUPPORT EQUIP GROUPING ID NO	TOOL CO	ATE	U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16	17	18	19	20	21	22	23	24 25 26 27 28 29	30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46	47	48 49 50 51 52 53 54	55	56 57	58 59 60 61 62	63 64 65 66 67	68 69 70 71 72	73	74	75 76 77	78	79	80
C 0 4 A																												
C 0 4																												
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16	17	18	19	20	21	22	23	24 25 26 27 28 29	30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46	47	48 49 50 51 52 53 54	55	56 57	58 59 60 61 62	63 64 65 66 67	68 69 70 71 72	73	74	75 76 77	78	79	80

DATA SHEET D: MAINTENANCE AND OPERATOR TASK ANALYSIS

DATE: ____________ PAGE ______ OF ______

SUBMITTED BY: ____________ EXT: ______

TASK IDENTIFICATION ____________

CARD NUMBER	1 LSA CONTROL NUMBER	2 TASK CODE	3 END ITEM ACRONYM	4 ITEM NAME	5 MANUFACTURERS PART NUMBER	6 FSCM	7 DATE YR	MO	DA	UC
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33	34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68	69 70 71 72 73	74 75	76 77	78 79	80
D 0 1										

CARD NUMBER	1 LSA CONTROL NUMBER	2 TASK CODE	3 TASK IDENTIFICATION	4 SMC	5 MEANS OF DETECTION	6 HOW MAL CODE	7 REFERENCE WORK UNIT CODE	8 SOURCE CODE (see)	UC
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63	64	65 66	67 68 69	70 71 72 73 74 75 76	77 78 79	80
D 0 2									

CARD NUMBER	1 SLN	2 SEQUENTIAL TASK DESCRIPTION	3 WORK AREA	4	5 MAN HOURS MINUTES	6 ELAPSED TIME MINUTES	UC
1 2 3 4	5 6 7	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	65 66 67 68	69	70 71 72 73 74	75 76 77 78 79	80
D 0 3 A							
1 2 3 4	5 6 7	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	65 66 67 68	69	70 71 72 73 74	75 76 77 78 79	80
D 0 3							
1 2 3 4	5 6 7	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	65 66 67 68	69	70 71 72 73 74	75 76 77 78 79	80
D 0 3							
1 2 3 4	5 6 7	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	65 66 67 68	69	70 71 72 73 74	75 76 77 78 79	80
D 0 3							
1 2 3 4	5 6 7	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	65 66 67 68	69	70 71 72 73 74	75 76 77 78 79	80
D 0 3							
1 2 3 4	5 6 7	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	65 66 67 68	69	70 71 72 73 74	75 76 77 78 79	80

CARD NUMBER	1 SSC A	MAN-HOURS A MINUTES	2 SSC B	MAN-HOURS B MINUTES	3 SSC C	MAN-HOURS C MINUTES	4 SSC D	MAN-HOURS D MINUTES	5 SSC E	MAN-HOURS E MINUTES	6 TOTAL ELAPSED TIME		UC
1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16	17 18 19 20 21 22 23	24 25 26 27 28	29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45 46 47	48 49 50 51 52	53 54 55 56 57 58 59	60 61 62 63 64	65 66 67 68 69	70 71 72 73 74 75 76 77 78 79	80
D 0 4 A													

DATA SHEET DI: ADDITIONAL MAINTENANCE AND OPERATOR TASK INFORMATION

DATE: ____________ PAGE ______ OF ______
SUBMITTED BY ____________ EXT ______

CARD NUMBER	1 LSA CONTROL NUMBER	2 TASK CODE	3 TASK IDENTIFICATION	4 SMC	5 MEANS OF DETECTION	6 HOW-MAL CODE	7 REF WUC	8 SRD	UPDATE CODE
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63	64	65 66	67 68 69	70 71 72 73 74 75 75	77 78 79	80
D 0 2									

CARD NUMBER	1 LSA CONTROL NUMBER	2 TASK CODE	3 MANUFACTURERS PART NUMBER	4 ICC	5 ITEM NAME	6 QTY/TASK	UC
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	56	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	76 77 78 79	80
D 0 5 A							
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	56	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	76 77 78 79	80
D 0 5							
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	56	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	76 77 78 79	80
D 0 5							
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	56	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	76 77 78 79	90
D 0 5							

CARD NUMBER	1 LSA CONTROL NUMBER	2 TASK CODE	3 SSC	4 TASK COND.	5 PERF STANDARDS	6 TH REC	7 TRAINING RATIONALE	8 TRAINING LOCATION RATIONALE	9	10 EST NO OF WEEKS	11 NO OF T.O PAGES	12 NO. OF T.O ILLUSTR	13 TRAINING COST		UPDATE CODE
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23	24 25 26 27 28 29 30	31 32	33 34 35	36	37 38 39 40	41 42 43 44	45	46 47 48	49 50 51	52 53 54	55 56 57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
D 0 6 A															
D 0 6 B															
D 0 6 C															
D 0 6 D															
D 0 6 E															
D 0 6 F															
D 0 6 G															

DATA SHEET E: SUPPORT AND TEST EQUIPMENT OR TRAINING MATERIAL DESCRIPTION AND JUSTIFICATION

DATE: ____________ PAGE ____ OF ____

SUBMITTED BY: ____________ EXT: ____

ALTERNATE LSACN

CARD NUMBER E01: 1 LSACN (FGC/WBS/WUC) | 2 END ITEM ACRONYM CODE | 3 SERVICE DES | 4 FSCM | 5 ALTERN ACTION | 6 REV CODE | 7 DATA STATUS | 8 DWG CLASS | 9 SERIAL NUMBER EFFECTIVITY: FROM, TO | 10 DATE: YR, MO, DA | 11 TEST SET LSACN | UPDATE CODE

CARD NUMBER E02: LSACN | 2 ITEM NAME | 3 ITEM DESIGNATOR CODE: TYPE, MODEL, SERIES, SUFFIX | 4 CONVERSION FACTOR | 5 CALIB REQ'D | 6 CRIT | 7 CTL REL | 8 ITEM NUMBER | UC

CARD NUMBER E03A, E03B: LSACN | 2 MFR PART NUMBER | 3 FSCM | 4 DRAWING NUMBER | 5 FSCM | 6 CONTRACT NUMBER | UC

CARD NUMBER E04: LSACN | 2 TYPE ITEM CODE | 3 OPERATING: A LENGTH, B WIDTH, C HEIGHT, D UNIT MEAS., E WEIGHT, F UNIT MEAS. | 4 STORAGE: A LENGTH, B WIDTH, C HEIGHT, D UNIT MEAS., E WEIGHT, F UNIT MEAS. | 5 PRE POSITION CODE | UC

CARD NUMBER E05: LSACN | 2 ITEM CAT CODE | 3 UNIT COST (NONRECURRING) | UPM | 4 UNIT COST (RECURRING) | UPM | 5 TOTAL QUANTITY REC | 6 EXTENDED UNIT PRICE | 7 SUP EQUIP GP ID NO. | 8 UPM | 9 TEL CHANGE CODE | UC

TEST MEASUREMENT AND DIAGNOSTIC EQUIPMENT

CARD NUMBER E06: LSACN | 2 PARAMETERS MEASURED OR SIGNAL PROVIDED (TMDE) | 3 RANGE (FROM): VALUE, MEASUREMENT TERM | 4 RANGE (TO): VALUE, MEASUREMENT TERM | UC

CARD NUMBER E07: LSACN | 5 TOLERANCE PLUS (+): VALUE, MEASUREMENT TERM | 6 TOLERANCE MINUS (-): VALUE, MEASUREMENT TERM | 7 No Of Ranges | 8 REMARKS | UC

CARD NUMBER E08: LSACN | 2 JUSTIFICATION (INCLUDE REASON "CRITICAL" DESIGNATION, CARD E02, BLOCK 6) | SEQUENCE NUMBER | UC

CARD NUMBER E09: LSACN | 2 DESCRIPTION OF OPERATION/FUNCTION | SEQUENCE NUMBER | UC

CARD NUMBER E10: LSACN | 2 CHARACTERISTICS/NARRATIVE DESCRIPTION | SEQUENCE NUMBER | UC

CARD NUMBER E11: LSACN | 2 ADDITIONAL SKILL, SPECIAL TRAINING REQUIREMENTS | SEQUENCE NUMBER | UC

CARD NUMBER E12: LSACN | 2 INSTALLATION FACTORS | SEQUENCE NUMBER | UC

DATA SHEET E1: ADDITIONAL TMDE FOR REGISTRATION AND PROCUREMENT APPROVAL

DATE: ______________ PAGE ____ OF ______

SUBMITTED BY: ______________ EXT: ______

TMDE ITEM DATA

POWER REQUIRED

CARD NUMBER | 1 LSACN | 2 OPERATING VOLTAGE RANGE | 3 FREQUENCY | 4 | 5 WATTS | 6 OTHER FACILITIES | UC

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

E 1 3

CARD NUMBER | 1 LSACN | 2 CAL INT | 3 LIFE CYCLE STATUS | 4 MFR MODEL NO | 5 MFR NAME | 6 O & S COST | UC

E 1 4

CARD NUMBER | 1 LSACN | 2 MANAGING CMD/AGCY | 3 OTHER USING CMDS/AGCYS | 4 PROPONENT | 5 OPERATORS MANUALS | UC

E 1 5

CARD NUMBER | 1 LSACN | 2 NSN | 3 LINE ITEM NO | 4 SKILL SPECIALTY CODE | 5 SELF TEST | 6 | 7 TYPE | 8 MTBF | 9 MTBMA | 10 | 11 MTTR | UC

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

E 1 6

CARD NUMBER | 1 LSACN | 2 METHOD OF AQUIRING TEST SIGNAL | SEQ NO | UC

E 1 7

CARD NUMBER | 1 LSACN | 2 STANDARDS FOR COMPARISON | SEQ NO | UC

E 1 8

TMDE REQUIREMENTS DATA

POWER AVAILABLE TO OPERATE TMDE

CARD NUMBER | 1 LSACN | 2 VOLTAGE | 3 FREQUENCY | 4 | 5 WATTS | 6 % MAX RIPPLE | 7 OTHER FACILITIES | UC

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

E 1 9

CARD NUMBER | 1 LSACN | 2 FGC/WBS/WUC | 3 TASK CODE | 4 PARAMETERS TO BE MEASURED (UUT) | 5 RANGE (FROM) VALUE / MEAS TERM | SEQ NO | UC

E 2 0

CARD NUMBER | 1 LSACN | 6 RANGE (TO) VALUE / MEAS TERM | 7 TOLERANCE PLUS (+) VALUE / MEAS TERM | 8 TOLERANCE MINUS (−) VALUE / MEAS TERM | 9 REMARKS REF START / END | 10 TEL ITEM NUMBER | SEQ NO | UC

E 2 1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER | 1 LSACN | 2 | 3 LIFE SPAN | 4 | 5 AUTHORITY FOR MOD CHANGE | 6 IDENTIFY SOURCE OF PLANNED OR ESTAB TRAINING | SEQ NO | UC

E 2 2

CARD NUMBER | 1 LSACN | 2 | 3 IF NO, EXPLAIN TEST IF YES, EXPLAIN HOW SIGNAL IS OBTAINED | SEQ NO | UC

E 2 3

CARD NUMBER | 1 LSACN | 2 | 3 INTERFACE ADPT / SIG COND REQUIRED, ENTER "Y" OR "N" & EXPLAIN | SEQ NO | UC

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

E 2 4

CARD NUMBER | 1 LSACN | 2 | 3 TMDE REG INDEX NO. | 4 | 5 TECH DATA PKG AVAILABLE, ENTER "Y" OR "N" & EXPLAIN | SEQ NO | UC

E 2 5

CARD NUMBER | 1 LSACN | 2 | 3 IF ECONOMIC ANALYSIS WAS PERFORMED, ATTACH COPY, IF NOT EXPLAIN | SEQ NO | UC

E 2 6

CARD NUMBER | 1 LSACN | 2 INITIAL QTY TMDE | 3 DATE REQUIRED (YR/MO/DAY) | 4 EST TOTAL QTY | 5 DATE REQUIRED (YR/MO/DAY) | 6 NEAREST PREFERRED ITEM INDEX | 7 NEAREST REGISTER ITEM INDEX | 8 QUANTITY | LOCATION | UC

E 2 7

CARD NUMBER | 1 LSACN | 2 QUANTITY | LOCATION | 3 QUANTITY | LOCATION | 4 QUANTITY | LOCATION | UC

E 2 8

CARD NUMBER | 1 LSACN | 2 REMARKS | SEQ NO | UC

E 2 9

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

DATA SHEET E: SUPPORT & TEST EQUIPMENT OR TRAINING MATERIAL DESCRIPTION & JUSTIFICATION (SUPPLEMENTAL DATA)

DATE: ______________ PAGE ______ OF ______

SUBMITTED BY: ______________ EXT: ______

CARD NUMBER	1 LSACN	2 STATUS CODE	3 USABLE ON CODE	4. T.O TYPE	5 MRC	6 MATCH IND CODE	7 INSTL	8 ESTIMATED DATE OF FIRST ARTICLE	9 PLT	10 RECOMMENDED QUANTITY FACTOR	11 SUPERCEDES LSACN	12 MMF		UPDATE CODE
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	36 37 38 39	40 41 42 43	44	45 46 47	48	49 50 51 52	53 54	55 56 57 58 59	60 61 62 63 64 65 66 67 68 69 70	71	72 73 74 75 76 77 78 79	80
E 3 0 A														

CARD NUMBER	1 LSACN	2 REASON FOR DELETION / SUPERSEDURE DATA	3 GOVERNMENT TYPE DESIGNATION	4 PRIME CONTRACTOR'S PART NUMBER (WHEN DIFFERENT FROM THE MANUFACTURER'S PART NUMBER)		U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62	63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78	79	80
E 3 1 A						

CARD NUMBER	1 LSACN	2 SYSTEM NUMBER	3 END ITEM SPECIFICATION (EIS)	4 RRPL / GAPL	5 SPARC FACTOR	6 SMR CODE	7 ALLOWANCE / MAINTENANCE LEVEL FUNCTION	8 BASIS OF ISSUE												
								1-4	5-8	9-12	13-16	17-24	25-32	33-64	65-125	126-250	251-450	EXT RANGE	REVISION CODE		U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21	22 23 24 25 26 27 28	29 30 31 32	33 34 35 36	37 38 39 40 41 42	43 44 45 46 47 48 49 50 51	52 53	54 55	56 57	58 59	60 61	62 63	64 65	66 67	68 69	70 71	72	73	74 75 76 77 78 79	80
E 3 2 A																				

CARD NUMBER	1 LSACN	2 TRUE VENDOR PART NUMBER	3 TRUE VENDOR NAME	4 FSCM		U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66	67 68 69 70 71	72 73 74 75 76 77 78 79	80
E 3 3 A						

CARD NUMBER	1 LSACN	2 LSACN (ITEM SUPPORTED)	3 T.O. DESIGNATION	4 T.O. CHG NO.	5 [illegible]	6 T.O. FIGURE NUMBER	7 T.O. ITEM NUMBER	8 T.O. DATE			9 LEAD TIME		U C
								YR	MO.	DA.	MO.		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26	27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46	47 48	49	50 51 52 53	54 55 56 57	58 59	60 61	62 63	64 65	66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
E 3 4 A													

CARD NUMBER	1 LSACN	2 NO OF COMP	3 TMDE COMPONENT LSACN	4 TMDE COMPONENT LSACN	5 TMDE COMPONENT LSACN	6 TMDE COMPONENT LSACN	7 TMDE COMPONENT LSACN		8 SEQ NO.	U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17	18 19 20 21 22 23 24 25 26 27 28	29 30 31 32 33 34 35 36 37 38 39	40 41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61	62 63 64 65 66 67 68 69 70 71 72	73 74 75 76	77 78 79	80
E 3 5										

DATA SHEET F: FACILITY DESCRIPTION AND JUSTIFICATION

DATE: ____________ PAGE ______ OF ______
SUBMITTED BY: ____________ EXT ______

CARD NUMBER	1 LSACN (FGC/WBS/WUC)	2 END ITEM ACRONYM CODE	3 SERVICE DES CODE	4 FSCM	5 ALTERN ACTION CD	6 REV CODE	7 DATA SHEET STATUS	8 DWG-CLASS	9 ITEM NAME (FACILITY)	10 DATE YR MO DA	11 FACILITY CAT CODE	12 FACILITY TYPE	13 UPDATE CODE
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25	26	27 28 29 30 31	32	33	34	35 36 37	38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	57 58 59 60 61 62	63 64 65 66 67 68	69	70 71 72 73 74 75 76 77 78 79 80
F 0 1 A													

CARD NUMBER	1 LSACN (FGC/WBS/WUC)	2 FACILITIES COST	3 UPM	4 FACILITY AREA	5 UNIT OF MEAS.	6 FACILITIES LEAD TIME A TEST	B OPS	C DEPOT	D TRNG		UC
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25	26	27 28 29 30 31 32	33 34	35 36	37 38	39 40	41 42	43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
F 0 1 B											

CARD NUMBER	LSACN (FGC/WBS/WUC)	FUNCTIONS TO BE PERFORMED, C & D SHEETS							
		1 LSACN (FGC/WBS/WUC)	2 TASK CODE	1 LSACN (FGC/WBS/WUC)	2 TASK CODE	1 LSACN (FGC/WBS/WUC)	2 TASK CODE	SEQ NO	UC
F 0 2 A									
F 0 2 B									
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26	27 28 29 30 31 32 33 34	35 36 37 38 39 40 41 42 43 44 45	46 47 48 49 50 51 52 53	54 55 56 57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80

CARD NUMBER	LSACN	1 FACILITIES REQUIREMENTS	SEQ NO	UC
F 0 3				
CARD NUMBER	LSACN	1 FACILITIES DESIGN CRITERIA	SEQ NO	UC
F 0 4				
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80
CARD NUMBER	LSACN	1 FACILITIES INSTALLATION LEAD TIMES	SEQ NO	UC
F 0 5				
CARD NUMBER	LSACN	1 TYPE OF CONSTRUCTION	SEQ NO	UC
F 0 6				
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80
CARD NUMBER	LSACN	1 UTILITIES REQUIREMENTS	SEQ NO	UC
F 0 7				
CARD NUMBER	LSACN	1 FACILITY UTILIZATION	SEQ NO	UC
F 0 8				
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80
CARD NUMBER	LSACN	1 FACILITY UNIT COST RATIONAL	SEQ NO	UC
F 0 9				
CARD NUMBER	LSACN	1 JUSTIFICATION	SEQ NO	UC
F 1 0				
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80

DATA SHEET G: SKILL EVALUATION AND JUSTIFICATION

DATE: ____________ PAGE ______ OF ______

SUBMITTED BY: ____________ EXT: ______

CARD NUMBER	1 LSACN (FGC/WBS/WUC)	2 END ITEM ACRONYM CODE	3	4 FSCM	5	6	7	8 DWG CLASS	9 SERIAL NUMBER EFFECTIVITY FROM	9 SERIAL NUMBER EFFECTIVITY TO	10 DATE YR	10 DATE MO	10 DAY		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25	26	27 28 29 30 31	32	33	34	35 36 37	38 39 40 41 42 43 44 45 46 47	48 49 50 51 52 53 54 55 56 57	58 59	60 61	62 63	64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
G 0 1															

CARD NUMBER	LSACN	1 DUTY POSITION REQUIRING A NEW OR REVISED SKILL	2 SSC NUMBER ASSIGNED NEW DUTY POSITION		U C
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34	35 36 37 38 39 40 41	42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
G 0 2					

CARD NUMBER	LSACN	1 (SKILL SPECIALLY FROM WHICH PERSONNEL CAN BE OBTAINED) SSC NUMBER	1 (SKILL SPECIALLY FROM WHICH PERSONNEL CAN BE OBTAINED) SSC NUMBER	2 TEST SCORE	3 SECURITY CLEARANCE	4 RECOMMENDED RANK/RATE/GRADE MILITARY RANK/RATE	4 RECOMMENDED RANK/RATE/GRADE CIVILIAN GRADE		
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22	23 24 25 26 27 28 29	30 31	32	33 34 35	36 37 38 39	40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
G 0 3									

CARD NUMBER	LSACN	FUNCTIONS TO BE PERFORMED, C & D SHEETS 1 LSACN (FGC/WBS/WUC)	2 TASK CODE	1 LSACN (FGC/WBS/WUC)	2 TASK CODE	1 LSACN (FGC/WBS/WUC)	2 TASK CODE		U C
G 0 4 A									
G 0 4 B									

CARD NUMBER	LSACN	1 ADDITIONAL SKILL REQUIREMENT (SKILL REQUIRING A NEW OR REVISED SKILL CODE)	Sequence Number	U C
G 0 5 A				
G 0 5				
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80

CARD NUMBER	LSACN	1 PHYSICAL AND MENTAL REQUIREMENTS	Sequence Number	U C
G 0 6 A				
G 0 6				

CARD NUMBER	LSACN	1 EDUCATIONAL QUALIFICATIONS (ACADEMIC SUBJECTS, SPECIALIZED SUBJECTS, SPECIALIZED DEGREE AND LICENSES, ETC.)	Sequence Number	U C
G 0 7 A				
G 0 7				
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80

CARD NUMBER	LSACN	1 JUSTIFICATION	Sequence Number	U C
G 0 8 A				
G 0 8				

CARD NUMBER	LSACN	1 ADDITIONAL TRAINING REQUIREMENTS	Sequence Number	U C
G 0 9 A				
G 0 9				
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80

DATA SHEET H: SUPPLY SUPPORT REQUIREMENTS

DATE: ____________ PAGE ______ OF ______

SUBMITTED BY: ____________ EXT: ______

CARD NUMBER H 0 1 A	1 MANUFACTURER'S PART NUMBER	4 FSCM	5 ITEM NAME	7. QTY/EI	8 TYPE OF ITEM	13. TOTAL QTY REC	SERVICE CODE	15. DATE YR / MO / DAY	CRC /PMC			UC
CARD NUMBER H 0 1 B	1 MANUFACTURER'S PART NUMBER	2 MFG PART NUMBER OVERFLOW	4. LENGTH	5. WIDTH	6. HEIGHT	7 UM	8 WEIGHT	9. UM	11 UI	12 UI PRICE	13 CONV. FAC. / 14. IMPC	UC
CARD NUMBER H 0 1 C	1 MANUFACTURER'S PART NUMBER	2 PACKAGING REQUIREMENTS CODE	3 MAT'L FINISH	4 HAZARDOUS CHARACTERISTICS CODE	5. ECONOMIC ORDER QTY.	7 MATCH INDICATOR CODE						UC
CARD NUMBER H 0 2 A H 0 2 B H 0 2 C H 0 2 D	1 MANUFACTURER'S PART NUMBER	2 ADDITIONAL REFERENCE NUMBERS	5. FSCM	6. MAOT	8 UNIT PRICE	9 QUP						UC
CARD NUMBER H 0 3	1 MANUFACTURER'S PART NUMBER	2 NATIONAL STOCK NUMBER	7 CON TAT	8. TAT (REP CYCLE) ORG / DSU / GSU / DEP	9. REPL TASK DIST ORG / DSU / GSU / PCS / DEP	10 RIC						UC
CARD NUMBER H 0 4 A	1 MANUFACTURER'S PART NUMBER	2 BASIS OF ISSUE QUANTITY / BOI END ITEM	3. BASIS OF ISSUE QUANTITY / BOI END ITEM	4. BASIS OF ISSUE QUANTITY / BOI END ITEM	5 BIC	6. BIIL QTY.						UC
CARD NUMBER H 0 5 A	1 MANUFACTURER'S PART NUMBER	2. LSA CONTROL NUMBER	3 SMR	5. FAIL FACTOR I MAINTENANCE FACTOR (M/F)	6. FAIL FACTOR II O/M % / BCR %	7 FAIL FACTOR III NRTS % / DCR %	CODE	9 QTY. /ASSY	10. REMARKS			UC
CARD NUMBER H 0 5 B	1 MANUFACTURER'S PART NUMBER	2. LSA CONTROL NUMBER	3 SEC	4. MAINT TECH FACTOR I	5. MAINT TECH FACTOR II	6. MAINT TECH FACTOR III	7. MAINT TECH FACTOR IV	8 MAINT TECH FACTOR V	9 MAINT TECH FACTOR VI	10 MAINT TASK DIST ORG. / DSU / GSU / DEP. / R/R		UC
CARD NUMBER H 0 6	1 MANUFACTURER'S PART NUMBER	2. LSA CONTROL NUMBER	3 PLISN	4. NHA PLISN	5. SAME AS PLISN	6. PRIOR ITEM PLISN	7 PRIOR ITEM PCCN	8 PCCN	9. SCC	11 TEL CHANGE CODE		UC
CARD NUMBER H 0 7 A H 0 7 B	1 MANUFACTURER'S PART NUMBER	2 LSA CONTROL NUMBER	OHL/KIT/SET 3 PLISN	4 OHL/QTY	5 REFERENCE DESIGNATION							UC
Card Number H 0 8	1 MANUFACTURER'S PART NUMBER	2 LSA CONTROL NUMBER	3 USABLE ON CODE	4 TRUE VENDOR PART NUMBER	5. FSCM							UC
CARD NUMBER H 0 9 A H 0 9 B	1 MANUFACTURER'S PART NUMBER	2. LSA CONTROL NUMBER	3 T O DESIGNATION	4 T O CHG	6 T O FIGURE NO	7 ITEM NO	8. T O DATE YR / MO / DA	9 T O LEAD TIME				UC
CARD NUMBER H 1 0 A H 1 0 B	1 MANUFACTURER'S PART NUMBER	2 LSA CONTROL NUMBER	3 CHANGE AUTHORITY NUMBER	4 IC	5 SERIAL NUMBER EFFECTIVITY FROM / TO	6. PCC	7 TIC	8 REP OR SUP PLISN				UC
Card Number H 2 0 A H 2 0 B	1 MANUFACTURER'S PART NUMBER	2. LSA CONTROL NUMBER	3 CHANGE AUTHORITY NUMBER	4 QTY SHIPPED	5 QTY PROCURED	6 PRORATED FROM ELIN	7 PRORATED QTY	8 PRORATED TO ELIN				UC
Card Number H 3 0 A H 3 0 B	1 MANUFACTURER'S PART NUMBER	2. LSA CONTROL NUMBER	3 PROVISIONING NOMENCLATURE	NA								UC

DATA SHEET H: SUPPLY SUPPORT REQUIREMENTS – SUPPLEMENTAL

DATE: ______________ PAGE ______ OF ______

SUBMITTED BY: ______________ EXT: ______

CARD NUMBER	1 MANUFACTURER'S PART NUMBER	2 SLRNC	3 FSCM	4 NEXT HIGHER ASSEMBLY PART NUMBER	5 SLRNC	6 FSCM	7 NEXT HIGHER RECOVERABLE ASSEMBLY OR ATTACH TO PART NUMBER	8 SLRNC	9 FSCM	ICC		UPDATE CODE
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21	22 23 24 25 26	27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42	43	44 45 46 47 48	49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64	65	66 67 68 69 70	71	72 73 74 75 76 77 78 79	80
H 4 0 A												
H 4 0 B												

CARD NUMBER	1 MANUFACTURER'S PART NUMBER	2 YEAR	3 DESTINATION (SRAN)	4 DELIVERY SCHEDULE A JAN	B FEB	C MAR	D APR	E MAY	F JUN	G JUL		5 SEQ NUMBER	U.C.
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22	23 24 25 26 27 28	29 30 31 32	33 34 35 36	37 38 39 40	41 42 43 44	45 46 47 48	49 50 51 52	53 54 55 56	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79	80
H 5 0 A													

CARD NUMBER	1 MANUFACTURER'S PART NUMBER	2 YEAR	3 DESTINATION (SRAN)	4 DELIVERY SCHEDULE H AUG	I SEP	J OCT	K NOV	L DEC	5 PRORATED FROM ELIN	6 REQUISITION NUMBER		7 SEQ NUMBER	U.C.
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22	23 24 25 26 27 28	29 30 31 32	33 34 35 36	37 38 39 40	41 42 43 44	45 46 47 48	49 50 51 52 53 54	55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71	72 73 74 75 76	77 78 79	80
H 5 0 B													

INSERT CARD NUMBER AND HEADINGS AS REQUIRED (ADDITIONAL H30 CARDS FOR EXAMPLE)

CARD NUMBER	1 MANUFACTURER'S PART NUMBER		U.C.
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80
1 2 3 4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	80

DATA SHEET 1: AUTOMATIC TESTING EQUIPMENT/TEST PROGRAM SET DESCRIPTION

DATE : ____________ PAGE ______ OF ______

SUBMITTED BY: ____________ EXT: ______

CARD NUMBER	1 LSACN (FGC/WSB/WUC)	2 END ITEM ACRONYM CODE	3 SERVICE DES	4 FSCM	[illegible]	[illegible]	[illegible]	8 DWG CLASS	9 SERIAL NUMBER EFFECTIVITY FROM	TO	10 DATE YR MO DA	UPDATE CODE
1 0 1												
Card Number	LSACN	2 ITEM NAME	3 TYPE	MODEL	SERIES	SUFFIX	4 TRD NUMBER					UC
1 0 2												
Card Number	LSACN	2 MFR PART NUMBER	L/N/C	3 FSCM	4 DRAWING NUMBER	L/N/C	5 FSCM					UC
1 0 3 A												
1 0 3 B												
CARD NUMBER	LSACN	2 ITEM NAME	3 AUTOMATIC TEST EQUIPMENT IDENTIFICATION TYPE	MODEL	SERIES	SUFFIX						UC
1 0 4												
Card Number	LSACN	2 MFR. PART NUMBER	L/N/C	3 FSCM	4 DRAWING NUMBER	L/N/C	5 FSCM					UC
1 0 5 A												
1 0 5 B												

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER	LSACN	AUTOMATIC TEST EQUIPMENT 2 GENERAL SPECIFICATIONS	SEQ NUMBER	UC
1 0 6 A				
Card Number	LSACN	2 STIMULUS PARAMETERS RANGE AND TOLERANCE	SEQ NUMBER	UC
1 0 6 B				
Card Number	LSACN	2 REQUIREMENTS PARAMETERS RANGE AND TOLERANCE	SEQ NUMBER	UC
1 0 6 C				

CARD NUMBER	LSACN	TEST PROGRAM 2 MFR. PART NUMBER	3 FSCM	4 UNIT COST A. NON-RECURRING	B. RECURRING		UC
1 0 7 A							
CARD NUMBER	LSACN	2 OTP MFR. PART NUMBER	3 FAULT ISOLATION A. AMB GRP	% DET FAULTS	B. AMB GRP	% DET FAULTS	
1 0 7 B							

CARD NUMBER	LSACN	2 MFR. PART NUMBER	3 FSCM	TEST PROGRAM INSTRUCTION 4 UNIT COST A. NON-RECURRING	B. RECURRING	5 OTPI MFR. PART NUMBER	6 FSCM	UC
1 0 8								

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER	LSACN	INTERCONNECTION DEVICE (S) 2 ITEM NAME	3 MFR. PART NUMBER	4 FSCM	5 APPORTIONED UNIT COST A. NON-RECURRING	B. RECURRING	6 COM MON UUTS	UC
1 0 9								

CARD NUMBER	LSACN	FAULT ISOLATED REPLACABLE UNITS 2 LSACN	3 ITEM NAME	2 LSACN	3 ITEM NAME	UC
1 1 0						

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

DATA SHEET J: TRANSPORTABILITY ENGINEERING CHARACTERISTICS

REV CODE | DATA SH STATUS

DATE: ______________ PAGE ______ OF ______

SUBMITTED BY ______________ EXT: ______

CARD NUMBER	1 LSA CONTROL NUMBER	2 END ITEM ACRONYM	3 ITEM NAME	4 FSCM	5 DRAWING NUMBER	LINE	6 DATE YR MO DA	UPDATE CODE
J 0 1 A								
J 0 1 B								

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER	1 DWG CLASS	2	3 MODE OF TRANSPORT	4 SPECIFIC MODE REQUIREMENTS	UC
J 0 2					

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 90

CARD NUMBER	1 OPERATIONAL LENGTH	2 OPERATIONAL WIDTH	3 OPERATIONAL HEIGHT	4 SHIPPING LENGTH	5 SHIPPING WIDTH	6 SHIPPING HEIGHT	7 UM	8 ITEM WEIGHT	9 MAX SHIPPING WEIGHT	10. UM	11 QLP FRONT	12 QLP CENTER	13 QLP REAR	UC
J 0 3														

CARD NUMBER	1 CGL LENGTH	2 CENTER OF GRAVITY LENGTH DATUM REFERENCE LOCATION	3 CGL WIDTH	4 CENTER OF GRAVITY WIDTH DATUM REFERENCE LOCATION	5. CGL HEIGHT	6 CENTER OF GRAVITY HEIGHT DATUM REFERENCE LOCATION	7 UM	UC
J 0 4								

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER	1 CODE	2 T/L LOCATION LENGTH	3 LENGTH DATUM REFERENCE LOCATION	4 T/L LOCATION LENGTH	5 WIDTH DATUM REFERENCE LOCATION	6 T/L LOCATION LENGTH	7 HEIGHT DATUM REFERENCE LOCATION	8 UNIT OF MEASURE	UC
J 0 5									

CARD NUMBER	1 PS/C FLP	2 PS/C CLP	3 PS/C RLP	4 UM	5 QTP FRONT	6 QTP CENTER	7 QTP REAR	8 PS/C FT	9 PS/C CT	10. PS/C RT	11 UM	12 QSS	13 HAZARDOUS CHARACTERISTICS CODE	UC
J 0 6														

CARD NUMBER	1 S & VF VERTICAL	2 S & VF LATERAL	3 S & VF LONGITUDINAL	4 MEASUREMENT TERM	5 RESONANCES	UC
J 0 7						

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER	1 VTC	2 FOOTPRINT AREA	3 UM	4 FRONT OVERHANG LENGTH	5 REAR OVERHANG LENGTH	6 GCH	7 WHEELBASE LENGTH	8 UM	9 AA	10 CA	11 AD	12 MINIMUM SPEED	13 MAXIMUM SPEED	14 UM	15 TRL	16 UM	17 TIRE PRESSURE	18 TGP	19 UM	20 INTERAXLE LENGTH	21 INTERAXLE LENGTH	22 INTERAXLE LENGTH	23 INTERAXLE LENGTH	UC
J 0 8																								

CARD NUMBER	1 WHEELED VEHICLE TYPE CODE	2 AXLE LOAD AND TRACK WIDTH DATA	3 AXLE LOAD AND TRACK WIDTH DATA	4 AXLE LOAD AND TRACK WIDTH DATA	5. AXLE LOAD AND TRACK WIDTH DATA	6 AXLE LOAD AND TRACK WIDTH DATA	7 UM	8 UM	9. TIRE SIZE REF	UC
J 0 9										

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER	SPECIALIZED ENVIORNMENTAL CONSIDERATIONS	SEQUENCE NUMBER	UC
J 1 0			

CARD NUMBER	SPECIALIZED EQUIPMENT	SEQUENCE NUMBER	UC
J 1 1			

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CARD NUMBER	REMARKS	SEQUENCE NUMBER	UC
J 1 2			

APPENDIX B

ACDF ON-LINE DATA SCREENS

In Section IV the ACDF records are listed in Table 5, and the on-line menu screen used to retrieve these records is shown in Figure 19. This appendix contains the CRT terminal screens for several ACDF records. The information will be presented in the order shown for each record. Since all of the information in a record may not fit on a single screen, the system will instruct the user when additional information is avaiable in a record. The user would then hit the ENTER key on the terminal to display the "next page" of information.

SYSTEM DESIGN/PERFORMANCE RECORD

Display Format:

```
  AFG-2 DATE  XXXXX   -1 T.O. DATE XXXXX    REPORT DATE 99/99/99

 ---------------------------- AIRCRAFT RECORD ------------------------------
 AIRCRAFT MDS  XXXXX   XXXXXXXXXXXXXXXXX     AIRCRAFT SRD   XXX
  MANUFACTURER  XXXXXXXXXXXXXXXXX

 --------------------- SYSTEM DESIGN / PERFORMANCE RECORD ------------------
  VERTICAL HEIGHT          99.9 FT     FUSELAGE LENGTH          999.9 FT
  FUSELAGE VOLUME        999999 CUFT   MISSION PAYLOAD VOLUME  999999 CUFT
  MAX PAYLOAD LENGTH      999.9 FT     MAX PAYLOAD WIDTH         99.9 FT
  WING AREA                9999 SQ FT
  WING SPAN - MAX         999.9 FT     WING SWEEP - MAX            99 DEG
  WING SPAN - MIN         999.9 FT     WING SWEEP - MIN            99 DEG
  WING INCIDENCE - ROOT       9 DEG    WING INCIDENCE - TIP         9 DEG
  WING DIHEDRAL               9 DEG
  TREAD WIDTH              99.9 FT

  AIRCRAFT EMPTY WEIGHT  9999999 LBS   BASIC WEIGHT           9999999 LBS
  DESIGN WEIGHT          9999999 LBS   COMBAT WEIGHT          9999999 LBS
  MAX T.O. GROSS WEIGHT  9999999 LBS   MAX EXTERNAL WEIGHT      99999 LBS
  MAX FUEL WEIGHT-INTERNAL 99999 LBS   MAX LANDING WEIGHT      999999 LBS
  PAYLOAD WEIGHT          999999 LBS   MISSION PAYLOAD WT.     999999 LBS

 OPERATION AND PERFORMANCE....................
  TOTAL THRUST - MAX     999999 LBS    TOTAL THRUST - MIL      999999 LBS
  TAKE OFF DISTANCE        9999 FT     TAKE OFF SPEED             999 KTS
  STALL SPEED - MAX WT      999 KTS
  RATE OF CLIMB - MAX      9999 FT/MIN RATE OF CLIMB - MIL       9999 FT/MIN
  SERVICE CEILING         99900 FT     SERVICE CEILING 1 EG OUT 99900 FT
  COMBAT CEILING          99900 FT
  TIME CLIMB 20000 FT-MIL  99.9 MIN    TIME CLIMB 20000 FT-MAX   99.9 MIN
  MAX SPEED SEA LEVEL MIL  9999 KTS    MAX SPEED SEA LEVEL MAX   9999 KTS
  STRUCTURAL SPEED         9999 KTS    AVERAGE SPEED - FERRY      999 KTS
  AVE SPEED @ COMBAT ALT   9999 KTS    AVE SPEED COMBAT @ SL      999 KTS
  FERRY RANGE              9999 NM     COMBAT RADIUS            99999 NM
  BASIC SPEED   99900 FT   9999 KTS
  LANDING DISTANCE         9999 FT     STALL SPEED @ LANDING WT   999 KTS
  LOAD LIMIT POSITIVE       9.9        LOAD LIMIT NEGATIVE        9.9
  MAX WING LOADING          999 LBS/SQ FT
  TOTAL 2 DIGIT WUCS         99        TOTAL 3 DIGIT WUCS        9999
  TOTAL 4 DIGIT WUCS      99999        TOTAL 5 DIGIT WUCS      999999
```

BASIC MISSION PERFORMANCE RECORD

Display Format:

```
  AFG-2 DATE  XXXXX   -1 T.O. DATE XXXXX    REPORT DATE 99/99/99

 ---------------------------- AIRCRAFT RECORD ---------------------
 AIRCRAFT MDS  XXXXXXX XXXXXXXXXXXXXXXXXXXXX AIRCRAFT SRD   XXX
  MANUFACTURER  XXXXXXXXXXXXXXXXXXXXX

 -------------------------- BASIC MISSION RECORD ------------------
  TAKE OFF GROSS WEIGHT        999999 LBS
  MISSION FUEL WEIGHT          999999 LBS
  PAYLOAD (XXXXXXXXXXXXXXX) WT 999999 LBS
  PAYLOAD (XXXXXXXXXXXXXXX) WT 999999 LBS
  WING LOADING                   9999 LBS/SQ FT
  STALL SPEED(POWER OFF)          999 KTS
  TAKE OFF GROUND RUN SL         9999 FT
  TAKE OFF TO CLEAR 50 FT        9999 FT

  RATE OF CLIMB AT SL AT BASIC MISSION LOAD (BML)     9999 FT/MIN
  RATE OF CLIMB AT SL AT BML WITH ONE ENGINE OUT      9999 FT/MIN

  TIME TO CLIMB TO    99000 FT.  99.9 MIN
  TIME TO CLIMB TO    99000 FT.  99.9 MIN

  SERVICE CEILING  AT MAX AIRCRAFT WEIGHT (MAW)          99999 FT
  SERVICE CEILING WITH ONE ENGINE OUT AT MAW             99999 FT

  COMBAT RADIUS                  9999 NM
  AVERAGE CRUISING SPEED          999 KTS
  INITIAL CRUISING ALT          99999 FT
  TARGET SPEED                    999 KTS
  TARGET ALTITUDE               99999 FT
  FINAL CRUISING ALT            99999 FT
  TOTAL MISSION TIME             99.9 HOURS
  COMBAT WEIGHT                999999 LBS
  COMBAT ALTITUDE               99900 FT
  COMBAT SPEED                  999.9 KTS
  COMBAT CEILING                99000 FT
  MAX RATE OF CLIMB-SL(BM)      99999 FT/MIN

  SERVICE CEILING  AT COMBAT WEIGHT                      99900 FT
  SERVICE CEILING WITH ONE ENGINE OUT AT COMBAT WEIGHT   99900 FT

  MAXIMUM SPEED      99000 FT    9999 KTS
  BASIC SPEED        99000 FT    9999 KTS
  LANDING WEIGHT               999999 LBS
  GROUND ROLL AT SL              9999 FT
  GROUND ROLL SL - AUX BRAKES    9999 FT
  TOTAL DISTANCE 50 FT           9999 FT
  TOTAL DISTANCE - AUX. BRAKES   9999 FT
```

SYSTEM FEATURES RECORD

Display Format:

```
  AFG-2 DATE  XXXXX   -1 T.O. DATE XXXXX    REPORT DATE 99/99/99

 ---------------------------- AIRCRAFT RECORD ----------------------
 AIRCRAFT MDS  XXXXXXX XXXXXXXXXXXXXXXXXXXX  AIRCRAFT SRD   XXX

 MANUFACTURER  XXXXXXXXXXXXXXXXXXXXX

 -------------------- SYSTEM FEATURES RECORD ----------------------
 TYPE AIRCRAFT            XXXXXXXXXX
 PRIMARY MISSION          XXXXXXXXXXXXXXXXX
 WEIGHT CLASS             999K < WT <= 999K
 DENSITY                  999.9
 NUMBER AIRCREW           99
 AIRCREW ESCAPE SYSTEM    XXXXXXXXXXXXXXXX
 -----------------------------------------------------------------
ENGINE - TYPE  XXXXXXXX        MODEL NUMBER  XXXXXXXXXX     SRD  XXX
TOTAL ENGINES  99
   IN FUSELAGE          9      FUSELAGE PODS  9
   IN WINGS             9      WINGS PODS     9
   INSTALLATION             XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   ENGINES AUGMENTED        XXX
   VARIABLE GEOMETRY INLETS XXX
   THRUST REVERSER          XXX
 -----------------------------------------------------------------
 WING LOCATION                                   XXXXXXXXXXXXX
 VARIABLE WING GEOMETRY                          XXX
DOES THE AIRCRAFT WINGS
                      CARRY INTERNAL FUEL............. XXX
                      INCORPORATE HIGH TECHNOLOGY LIFT. XXX
                      UTILIZE BOUNDARY LAYER CONTROL... XXX
 NUMBER OF INDEPENDENT FLIGHT CONTROL SYSTEM...........  9
 INCORPORATE "FLY BY WIRE" CONTROL SYSTEM.............. XXX
 INCORPORATE STABILITY/CONTROL SYSTEM.................. XXX
 UTILIZE ELECTRICAL MULTIPLEX SYSTEMS.................. XXX
 NUMBER OF INDEPENDENT ELECTRICAL POWER SUPPLY SYSTEMS.  99
 ONE OR MORE AUXILLARY POWER UNITS..................... XXX
 NUMBER OF INDEPENDENT HYDRAULIC POWER SUPPLY SYSTEMS..  9
 HYDRAULIC SYSTEM PRESSURE ............... XXXXXXXXXXXXXXXXXXXXXXXXXXX
 NUMBER OF HYDRAULIC DEPENDENT SUBSYSTEMS .............  9
 -----------------------------------------------------------------
DOES THE AIRCRAFT HAVE......
 HF  COMMUNICATIONS.....  XXX        VHF COMMUNICATIONS..  XXX
 UHF COMMUNICATIONS.....  XXX        FM  COMMUNICATIONS..  XXX
 RADIO NAVIGATION.......  XXX        RADAR NAVIGATION....  XXX
 A/A RADAR.............   XXX        IR NAVIGATION.......  XXX
 ELECTRO-OPTICAL SYSTEM.  XXX        HEADS-UP DISPLAY....  XXX
```

```
INTERNAL GUNS..........  XXX        A/A MISSILES........  XXX
A/G MISSILES...........  XXX        CRUISE MISSILES.....  XXX
RADIO FREQUENCY SURVEILLANCE EQUIPMENT.... XXX
ELECTRONIC COUNTER MEASURES EQUIPMENT..... XXX
ON BOARD MAINTENANCE RECORDER............. XXX
LANDING GEAR TYPE..XXXXXXXXXXXXXXXXXXXXXX
NUMBER OF LANDING GEARS..  9        NUMBER OF WHEELS/TIRES 99
DE-ICING...............  XXX        ANTI-ICING..........  XXX
TYPE OF OXYGEN.........  XXXXXXX    BLEED-AIR...........  XXX
AUTO PILOT.............  XXX        AUTO PILOT / ILS....  XXX
TERRAIN FOLLOWING/TERRAIN AVOIDANCE(TF/TA).XXX
AUTO PILOT COUPLED TO TF/TA................XXX
AUTO PILOT COUPLED TO WEAPON DELIVERY SYS..XXX
FLIGHT DIRECTOR............................XXX
WEAPON CONTROL SYSTEM......................XXX
EXTERNAL STORE STATIONS.................... 99
CAMERAS ON BOARD...TYPE  ..................XXXXXXXXXXXXXXXXXXXXXXXXX
CAMERAS ON BOARD...PURPOSE  ...............XXXXXXXXXXXXXXXXXXXXXXXXX
AIR TO AIR REFUELING....... ...............XXX
AIR TO AIR REFUELING  TYPE  .. ............XXXXXXXXXXXXXXXX
WINDSHIELD RAIN REMOVAL ...................XXX
AIR TURBINE MOTORS ........................XXX
AVIONICS EQUIPMENT COOLING ................XXX
AVIONICS EQUIPMENT COOLING AGENT...........XXXXXXX
RADAR ALTIMETER............................XXX
CRASH DATA RECORDER ON BOARD...............XXX
EMERGENCY RADIO BEACON ....................XXX
COMMAND / CONTROL EQUIPMENT INSTALLED......XXX
FIRE SUPPRESSION SYSTEM....................XXXXXXXXXXXXXXXXXXXXXXXXXX
LANDING GEAR KNEELING......................XXX
LANDING GEAR CASTERING/STEERING............XXX
TAIL BUMPER................................XXX
BUILT IN TEST (BIT)........................XXX
EQUIPMENT/SYSTEM       WUC
XXXXXXXXXXXXXXXXXXXX  XXXXX
XXXXXXXXXXXXXXXXXXXX  XXXXX
XXXXXXXXXXXXXXXXXXXX  XXXXX
XXXXXXXXXXXXXXXXXXXX  XXXXX
STRUCTURAL COMPOSITE MATERIAL .............XXX
AVIONICS/WEAPON CONTROL COMPUTER SYSTEM....XXXXXXXXXX
```

ELECTRICAL POWER SUPPLY SUBSYSTEM RECORD

Display Format:

```
ELECTRICAL POWER SUPPLY DESIGN DATA
FOR AIRCRAFT  XXXXXXX (SRD XXX)

ELECTRICAL POWER SUPPLY 3-DIGIT WUC                     99
ELECTRICAL POWER SUPPLY 4-DIGIT WUC                    999
ELECTRICAL POWER SUPPLY 5-DIGIT WUC                   9999

GENERATORS - ENGINE                                      9
GENERATORS - HYDRAULIC                                   9
KVA @ GENERATOR                                        999
KVA - TOTAL                                           9999
GENERATOR RPM                                        99999
TYPE GENERATOR DRIVE MECHANISM  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX>
GENERATOR DRIVE TEMPERATURE                            999

GENERATOR - TEMPERATURE                                999
INVERTERS - INSTRUMENTS                                  9
INVERTERS - OTHER THAN INSTRUMENT                        9
VOLTAGE, A-C, INSTRUMENT INVERTER                      999
CONVERTERS                                              99
CIRCUIT BREAKERS RATINGS
                                 LOWEST AMPS            99
                                HIGHEST AMPS            99
CIRCUIT BREAKERS - TOTAL                               999
VOLTAGE, A-C, THREE PHASE                              999
VOLTAGE, A-C, SINGLE PHASE                             999
VOLTAGE, A-C, CYCLES                                   999
AMPERES - MAXIMUM                                       99

BATTERY TYPE                                    XXXXXXXXXXXXXX

BATTERY - NUMBER                                         9
BATTERY - VOLTAGE                                       99
BATTERY - AMPERE HOURS                                  99
VOLTAGE, D-C, AIRCRAFT                                  99
ELECTRICAL DISTRIBUTION METHOD                  XXXXXXXXXXXXXX


HARDWIRE TERMINATION METHODS
    LRU NOMENCLATURE                            XXXXXXXXXXXXXXXXXXXX
    LRU CONNECTOR WUC                           XXXXX
    LRU TERMINATION METHOD                      XXXXXXXXXXXXXXXXXXXX
    BUS NOMENCLATURE                            XXXXXXXXXXXXXXXXXXXX
    BUS WUC                                     XXXXX
    BUS TERMINATION METHOD                      XXXXXXXXXXXXXXXXXXXX
```

```
HARDWIRE TERMINATION METHODS
    LRU NOMENCLATURE                                 .
    LRU CONNECTOR WUC                                XXXXX
    LRU TERMINATION METHOD                           XXXXXXXXXXXXX......
    BUS NOMENCLATURE                                 XXXXXXXXXXXXXXXXXXXX
    BUS WUC                                          XXXXX
    BUS TERMINATION METHOD                           XXXXXXXXXXXXXXXXXXXX


HARDWIRE TERMINATION METHODS
    LRU NOMENCLATURE                                 XXXXXXXXXXXXXXXXXXXX
    LRU CONNECTOR WUC                                XXXXX
    LRU TERMINATION METHOD                           XXXXXXXXXXXXXXXXXXXX
    BUS NOMENCLATURE                                 XXXXXXXXXXXXXXXXXXXX
    BUS WUC                                          XXXXX
    BUS TERMINATION METHOD                           XXXXXXXXXXXXXXXXXXXX
    FUSE RATINGS                      LOWEST AMPS          99
                                     HIGHEST AMPS          99
    MINIMUM FREQUENCY                                     999
    MAXIMUM FREQUENCY                                     999
    D-C BUSES                                               9
    POWER DISTRIBUTION BOXES - A-C                         99
    CONNECTORS, ELECTRICAL - TOTAL                       9999
    TRANSFORMERS, ELECTRICAL - TOTAL                       99
    MULTIPLEX TERMINALS                                    99
    A-C  BUSES                                              9
    EXTERNAL POWER RECEPTACLES - ELECTRICAL                 9
    TRANSFORMER/RECTIFIER, ELECTRICAL TOTAL                99
    CONDUIT LENGTH                                       9999
    HARDWIRE - LENGTH                                  9999.9
    A-C  POWER SUPPLY COMPONENTS                          999
    D-C POWER SUPPLY COMPONENTS                           999
    A-C  AND D-C  COMPONENTS                              999
    ELECTRICAL POWER SUPPLY SUBSYSTEM WEIGHT

    ELECTRICAL GROUP   GROUP WEIGHT.......................          9999
    ELECTRICAL GROUP   A-C  VOLTAGE SYSTEM................          9999
    ELECTRICAL GROUP   D-C  VOLTAGE SYSTEM................          9999


    ELECTRICAL POWER SUPPLY WORK UNIT CODES
       WORK UNIT
         CODES   NOMENCLATURE                          NATIONAL STOCK NUMBER

         42000   ELECTRICAL POWER SUPPLY
         42XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   XXXXXXXXXXXXXXX
         42XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   XXXXXXXXXXXXXXX
```

ENGINE RECORD

Display Format:

```
 SOURCE FOR THIS DATA IS FROM AFG-3 DATED JUN 59
  ENGINE: TYPE TURBOJET       MODEL NUMBER J57-P-43W
 ENGINE MANUFACTURER PRATT & WHITNEY       150-HR-QUAL-TEST    MAR56
 PRODUCTION STATUS: OUT OF PRODUCTION
 NUMBER OF ENGINE PRODUCED  741 AT AN AVERAGE COST OF $  205,135
 COMPRESSOR TYPE IS COMPOUND, TWO-SPOOL AXIAL     WITH 16 STAGES.
 TYPE OF FAN
      COMPRESSOR STAGES - LP ROTOR  9
                        - LP FAN    0
                        - HP ROTOR  7
 NOMINAL PRESSURE RATIO             0.0
 NOMINAL BY PASS RATIO             0.00:1.
 MAX DESIGN PRESSURE RATIO OVERALL 12.00:1.
                         FAN         .00:1.

                         LP ROTOR    .00:1.
                         HP ROTOR    .00:1.
 MAX ALLOWABLE BLEED AIR           0.0 %
 MAX RATED AIR FLOW                 180 LB/SEC.
 MAX RATED AIR FLOW - FAN             0 LB/SEC.
 MAX RATED AIR FLOW - COMP            0 LB/SEC.
 COMBUSTION CHAMBER TYPE  ANNULAR OUTER / 8 FLOW THROUGH CAN-ANNULAR INNER CHAMB
 TURBINE TYPE             AXIAL - DUAL ROTOR
 TURBINE TOTAL STAGES               3
       LP ROTOR STAGES              2
       HP ROTOR STAGES              1
 MAX RATED TURB INLET TEMP/SLS     1600 DEGREES F
 MAX ALLOWABLE TURB INLET TEMP/SLS    0 DEGREES F
 TURBINE COOLING                   NONE.
 EXHAUST NOZZLE TURBINE            FIXED AREA.
 AFTERBURNER TYPE                  NONE
 MAX EXHAUST EXIT TEMP / SLS          0 DEGREES F
 TYPE OF IGNITION                  LOW TENSION, HIGH FREQUENCY GLA. TYPE ACD2, 2
 ACCESSORY DRIVE PROVISION         0
 THRUST TO WEIGHT RATIO             0.00:1.
 LENGTH - OVERALL                  167.3 IN.
 DIAMETER - NOMINAL                 38.9 IN.
 AFTERBURNER DIAMETER NOMINAL        0.0 IN.
 ENGINE WEIGHT (DRY)                3870 LB.
 ENGINE WEIGHT (WET)                   0 LB.
 GUARANTEED RATINGS AT STATIC SEA LEVEL STANDARD CONDITIONS.
             (LB)       (LP/HP)  (LB/HR/LB) MAX   (LB/SEC)
    MAXIMUM  11200    06400/09650  0.775      0        0
    MILITARY 11200    06400/09650  0.775      0        0
    NORMAL    9500    06100/09350  0.765      0        0
 ABSOLUTE ALTITUDE       55,000 FT.
 LIMITING MACH NR AT SL  0.8


 THE AIRCRAFT(S) USING THIS ENGINE ARE

  AIRCRAFT SRD         ENGINE  SRD
   B-52F   ABF    J57-P-43W    XBY
   B-52G   ABG    J57-P-43W    XB1
   KC-135A ACX    J57-P-43W    XJD
```

HYDRAULIC & PNEUMATIC POWER SUPPLY SUBSYSTEM RECORD

Display Format:

```
HYDRAULIC & PNEUMATIC POWER SUPPLY                          DATE 99/99/99
FOR AIRCRAFT  XXXXXXX (SRD XXX)

HYDRAULIC SYSTEM DESIGN

HYDRAULIC SYSTEM 3-DIGIT WUC                          99
HYDRAULIC SYSTEM 4-DIGIT WUC                         999
HYDRAULIC SYSTEM 5-DIGIT WUC                        9999

HYDRAULIC SYSTEMS - TOTAL                              9
HYDRAULIC SYSTEMS - ENGINE DRIVEN                      9
HYDRAULIC SYSTEMS - ELECTRICAL DRIVEN                  9
HYDRAULIC PUMPS - TOTAL                               99
HYDRAULIC PUMPS - ENGINE                              99
HYDRAULIC PUMPS - ELECTRICAL                          99
HYDRAULIC SUPPORTED SUBSYSTEM                         99

HYDRAULIC PUMP FLOW - ENGINE                          99
HYDRAULIC PUMP PRESSURE - ENGINE                     999
HYDRAULIC PUMP FLOW - ELECTRICAL                      99
HYDRAULIC PUMP PRESSURE - ELECTRICAL                 999
HYDRAULIC TANKS CAPACITY                             999
NUMBER OF HYDRAULIC TANKS                             99
HYDRAULIC SYSTEM PRESSURE - MAX                      999
HYDRAULIC PUMP RPM - ENGINE RATIO                   .999
HYDRAULIC TANK PRESSURE                               99
HYDRAULIC PUMP RPM - ELECTRICAL                     9999
HYDRAULIC PUMP - AUXILLARY                             9
HYDRAULIC PUMP FLOW - AUXILLARY                       99
HYDRAULIC PUMP PRESSURE - AUXILLARY                  999
HYDRAULIC SYSTEM OPERATING TEMPERATURE - MAX         999
HYDRAULIC MOTORS HOURS                                99
HYDRAULIC VALVES                                     999
HYDRAULIC FILTERS                                    999


PNEUMATIC POWER SOURCE     XXXXXXXXXXXXXXXXXXXXXXXXXXXX
PNEUMATIC CYLINDERS - NUMBER                           9
PNEUMATIC SYSTEM - NUMBER                              9
PNEUMATIC PRESSURE - MAXIMUM                        9999
PNEUMATIC SYSTEM COMPONENTS                           99


HYDRAULIC & PNEUMATIC SUBSYSTEM WEIGHT

HYDRAULIC & PNEUMATIC GROUP WEIGHT....................          9999
HYDRAULIC SUBSYSTEM WEIGHT............................      9999
PNEUMATIC SUBSYSTEM WEIGHT............................      9999


HYDRAULIC AND PNEUMATIC SUPPLY WORK UNIT CODES
  WORK UNIT
    CODES   NOMENCLATURE                      NATIONAL STOCK NUMBER

    45000   HYDRAULIC AND PNEUMATIC POWER
    45XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX      XXXXXXXXXXXXXXX
    45XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX      XXXXXXXXXXXXXXX
    45XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX      XXXXXXXXXXXXXXX
    45XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX      XXXXXXXXXXXXXXX
    45XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX      XXXXXXXXXXXXXXX
    45XXX   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX      XXXXXXXXXXXXXXX
```

OPERATIONAL SUPPORT/COST RECORD

CODE: OSC
RECORD NAME: OPERATIONAL SUPPORT/COST

Additional Input Requirements
The user will be prompted for the aircraft MDS and then for the code for the desired sub-record as follows:

CODE	SUB-RECORD NAME
1 -	AIRCRAFT LEVEL/AFR 800-16, FORMAT 4 DATA
2 -	WORK CENTER BY AIRCRAFT DATA
3 -	SUPPORT COST BY WUC DATA
4 -	R&M BY WUC DATA
5 -	MAINTENANCE ACTION BY WUC DATA

1. AIRCRAFT LEVEL/AFR 800-16, FORMAT 4 DATA

When code 1 is entered, the data elements listed below for this sub-record will be displayed as shown in the display format.

Display Format:

```
      FOR AIRCRAFT  MDS  XXXXXXX

      FLYING HOURS  999999      SORTIES 99999     LANDINGS 99999

      FROM DAY 999 OF 9999 (YEAR) TO DAY 999 OF 9999 (YEAR)

-------------------------------------------------------------------------------

                                  *       MMH/FH           *    MMH/SORTIE   *
                                  * ON-EQUIP   SHOP   TOTAL * ON-EQUIP  TOTAL *
PREVENTIVE MAINTENANCE
     PREVENTIVE                      999.9    999.9   999.9     999.9   999.9
     01 GENERAL SUPPORT              999.9    999.9   999.9     999.9   999.9
     02 GENERAL SUPPORT              999.9    999.9   999.9     999.9   999.9
     05 GENERAL SUPPORT              999.9    999.9   999.9     999.9   999.9
     06 GENERAL SUPPORT              999.9    999.9   999.9     999.9   999.9
     07 GENERAL SUPPORT              999.9    999.9   999.9     999.9   999.9
     09 GENERAL SUPPORT              999.9    999.9   999.9     999.9   999.9
     SUBTOTAL - GENERAL SUPPORT      999.9    999.9   999.9     999.9   999.9
     03 SCHEDULE INSPECTIONS         999.9    999.9   999.9     999.9   999.9
     04 SPECIAL INSPECTIONS          999.9    999.9   999.9     999.9   999.9
     SUBTOTAL - INSPECTIONS          999.9    999.9   999.9     999.9   999.9
     TOTAL                           999.9    999.9   999.9     999.9   999.9
 CORRECTIVE MAINTENANCE

     INHERENT MALFUNCTIONS           999.9    999.9   999.9     999.9   999.9
     INDUCED MALFUNCTIONS            999.9    999.9   999.9     999.9   999.9
     OTHER MALFUNCTIONS              999.9    999.9   999.9     999.9   999.9
     SUBTOTAL ALL MALFUNCTIONS       999.9    999.9   999.9     999.9   999.9
     NO DEFECT                       999.9    999.9   999.9     999.9   999.9
     TOTAL CORRECTIVE MAINT          999.9    999.9   999.9     999.9   999.9
     PRODUCTION IMPROVEMENT (TCTO)   999.9    999.9   999.9     999.9   999.9
     TOTAL BASE LEVEL MAINTENANCE    999.9    999.9   999.9     999.9   999.9

-------------------------------------------------------------------------------
```

OPERATIONAL SUPPORT/COST RECORD

2. WORK CENTER BY AIRCRAFT DATA

When code 2 is entered, the data elements listed below for this subrecord will be displayed as shown in the display format. A display for each applicable work center will be presented.

Display Format:

```
      WORK CENTER DATA FOR AIRCRAFT MDS XXXXXXX

      FLYING HOURS  999999      SORTIES 99999    LANDINGS 99999

      FROM DAY 999 OF 9999 (YEAR) TO DAY 999 OF 9999 (YEAR)

---------------------------------------------------------------------------

  WORK CENTER   TOTAL MANHOURS   TOTAL ELAPSED TIME  MAINTENANCE ACTIONS MTBMA
     H2112         999999.9          999999.9           999999          9999.9

                MEAN MAN HOURS/ACTION   MEAN ELAPSE TIME/ACTION  MEAN CREW SIZE
                       9999.9                   9999.9                99.9

                                     OFF-EQUIPMENT
  WORK CENTER   TOTAL MANHOURS   TOTAL ELAPSE TIME  MAINTENANCE ACTIONS
     H2112         999999.9         999999.9           999999

                MEAN MAN HOURS/ACTION   MEAN ELAPSE TIME/ACTION  MEAN CREW SIZE
                       9999.9                   9999.9                99.9

---------------------------------------------------------------------------
---------------------------------------------------------------------------

                                     ON-EQUIPMENT
  WORK CENTER   TOTAL MANHOURS   TOTAL ELAPSED TIME  MAINTENANCE ACTIONS MTBMA
     K2100           892.0           682.0                 20              4.6

                MEAN MAN HOURS/ACTION   MEAN ELAPSE TIME/ACTION  MEAN CREW SIZE
                        44.6                     34.1                 1.3

                                     OFF-EQUIPMENT
  WORK CENTER   TOTAL MANHOURS   TOTAL ELAPSE TIME  MAINTENANCE ACTIONS
     K2100           202.0          178.0               14

                MEAN MAN HOURS/ACTION   MEAN ELAPSE TIME/ACTION  MEAN CREW SIZE
                        14.4                     12.7                 1.1

---------------------------------------------------------------------------
```

NOTE: The first work center example shows field sizes (9's) for the data elements. The second shows actual data from a C-5A work center.

OPERATIONAL SUPPORT/COST RECORD

3. SUPPORT COST BY WUC DATA

When code 3 is entered, machine prompts user to enter WUC of interest. When entered, the data elements listed below for this sub-report will be displayed as shown in the display format. The user may enter a 2, 3, 4, or 5 digit WUC.

Display Format:

```
   OPERATIONAL AND SUPPORT COST DATA                        DATE 99/99/99

   REPORTING PERIOD FROM 99-99 THRU 99-99

   AIRCRAFT MDS XXXXXXX  WUC XXXXX    XXXXXXXXXXXXXXXXXXXX

   NEXT HIGHER ASSEMBLY WORK UNIT CODE XXXXX

   NATIONAL STOCK NUMBER      XXXXXXXXXXXXXXX

   QUANTITY PER APPLICATION               999    RESPONSIBLE ALC CODE    X


 ------------------------------------------------------------------------------

   COST                                  BASE        DEPOT
      CONDEMNATION SPARES          $9,999,999     $999,999
      DIRECT MATERIAL              $9,999,999     $999,999
      EXCHANGEABLE MOD  CLASS IV   $9,999,999     $999,999
      EXCHANGEABLE MOD  CLASS  V   $9,999,999     $999,999
      EXCHANGEABLE REPAIR          $9,999,999     $999,999
      MATERIAL MANAGEMENT OVERHEAD $9,999,999     $999,999
      OFF EQUIPMENT LABOR          $9,999,999
      OFF EQUIPMENT OVERHEAD       $9,999,999
      ON EQUIPMENT LABOR           $9,999,999
      ON EQUIPMENT OVERHEAD        $9,999,999
      SUPPLY MANAGEMENT OVERHEAD   $9,999,999
      DEPOT LABOR COST                            $999,999
      DEPOT LABOR HOURS                           $999,999
      DEPOT NUMBER OF OPERATIONS                  $999,999
      DEPOT OTHER COST                            $999,999
      2ND DEST. TRANSPORTATION     $9,999,999
      TOTAL WORK UNIT CODE       $999,999,999   $9,999,999

   NUMBER OF PARTS CONDEMNED          999,999
 ------------------------------------------------------------------------------
```

4. R&M BY WUC DATA

When code 4 is entered, the machine prompts the user to enter the WUC of interest. When entered, the data elements listed below for this sub-record will be displayed as shown in the display format. The user may enter a 2, 3, 4, or 5 digit WUC.

Display Format:

```
    R&M DATA BY WUC
    REPORTING PERIOD FROM (MONTH/YEAR) TO (MONTH/YEAR)
    AIRCRAFT MDS XXXXXXX  WUC XXXXX    XXXXXXXXXXXXXXXXXXXX
    NEXT HIGHER ASSEMBLY WORK UNIT CODE XXXXX
    NATIONAL STOCK NUMBER      XXXXXXXXXXXXXXX
    QUANTITY PER APPLICATION              999   RESPONSIBLE ALC CODE    X

-----------------------------------------------------------------------------
  REPAIRABLE THIS STATION           999,999
  NOT REPAIRABLE THIS STATION       939,999

MEAN TIMES BETWEEN MAINTENANCE (MT3M)

                 MTBM     STANDARD DEVIATION
 INDUCED         99999              99.999
 INHERENT        99999              99.999
 NO DEFECT       99999              99.999
 OTHER           99999              99.999
 PREVENTIVE      99999              99.999

OFF EQUIPMENT
    INDUCED MANHOURS                999,999
    INHERENT MANHOURS               999,999
    NO DEFECT MANHOURS              999,999
    OTHER MANHOURS                  999,999
    PREVENTIVE MANHOURS             999,999
    TOTAL MANHOURS                9,999,999   MAINTENANCE ACTIONS 999,999
    MEAN CREW SIZE                     99.9   STANDARD DEVIATION   99.999

    MEAN MANHOURS TO REPAIR        99,999.9   STANDARD DEVIATION   99.999
    MEAN ELAPSED TIME TO REPAIR    99,999.9   STANDARD DEVIATION   99.999

ON EQUIPMENT
    INDUCED EVENTS                  999,999   INDUCED MANHOURS     999,999
    INHERENT EVENTS                 999,999   INHERENT MANHOURS    999,999
    NO DEFECT EVENTS                999,999   NO DEFECT MANHOURS   999,999
    OTHER EVENTS                    999,999   OTHER MANHOURS       999.999
    PREVENTIVE EVENTS               999,999   PREVENTIVE MANHOURS 999,999
                                              TOTAL MANHOURS    9,999,999
    MEAN CREW SIZE                     99.9   STANDARD DEVIATION   99.999
    MEAN ELAPSED TIME TO REPAIR    99,999.9   STANDARD DEVIATION   99.999
    MEAN MANHOURS TO REPAIR        99,999.9   STANDARD DEVIATION   99.999
    OPERATING TIME                  999,999   STANDARD DEVIATION   99.999
--------------------------------------------------------------------------------
NOTE: Standard Deviation provided if available.
```

OPERATIONAL SUPPORT/COST RECORD

5. MAINTENANCE ACTION BY WUC DATA

When code 5 is entered, the machine prompts the user to enter the WUC of interest. When entered, the data elements listed below for this sub-record will be displayed as shown in the display format. A display will be presented for each set of Action Taken, How Malfunctioned, and Type How Malfunctioned Codes reported. A summary of all the displays is presented at the end for the WUC selected. The user may enter a 2, 3, 4, or 5 digit WUC.

Display Format:

```
    MAINTENANCE ACTION DATA

    AIRCRAFT MDS XXXXXXX        WUC XXXXX
    FLYING HOURS 999999      SORTIES  99999   LANDINGS 99999
    FROM (DAY/YEAR)  TO  (DAY/YEAR)

   ------------------------------------------------------------------------------
      WORK UNIT CODE:  XXXXX   ACTION TAKEN: X  HOW MAL CODE: 999  TYPE HOW MAL: 9
   ** UNSCHEDULED MAINTENANCE **

               MAINTENANCE                           MEAN     MAINTENANCE
      MTBMA      MANHOURS       ELAPSED TIME      CREW SIZE     ACTIONS
     9999.9       9999.9            999.9           99.9         9999

   ** SCHEDULED MAINTENANCE **
               MAINTENANCE                           MEAN     MAINTENANCE
      MTBMA      MANHOURS       ELAPSED TIME      CREW SIZE     ACTIONS
     9999.9       9999.9            999.9           99.9         9999
   ------------------------------------------------------------------------------
   ------------------------------------------------------------------------------

      WORK UNIT CODE:  65ABO   ACTION TAKEN: Q  HOW MAL CODE: 799  TYPE HOW MAL: 6
   ** UNSCHEDULED MAINTENANCE **

               MAINTENANCE                           MEAN     MAINTENANCE
      MTBMA      MANHOURS       ELAPSED TIME      CREW SIZE     ACTIONS
        .0            .7               .7            1.0            0

   ** SCHEDULED MAINTENANCE **
               MAINTENANCE                           MEAN     MAINTENANCE
      MTBMA      MANHOURS       ELAPSED TIME      CREW SIZE     ACTIONS
        .0            .0               .0             .0            0
   ------------------------------------------------------------------------------
   ------------------------------------------------------------------------------

   ---- SUMMARY OF MAINTENANCE DATA ----
    AIRCRAFT MDS   C-5A    WORK UNIT CODE 65AB
   ** UNSCHEDULED MAINTENANCE **

               MAINTENANCE                           MEAN     MAINTENANCE
      MTBMA      MANHOURS       ELAPSED TIME      CREW SIZE     ACTIONS
       93.2          1.4              1.4            1.0            1

   ** SCHEDULED MAINTENANCE **
               MAINTENANCE                           MEAN     MAINTENANCE
      MTBMA      MANHOURS       ELAPSED TIME      CREW SIZE     ACTIONS
        .0            .0               .0             .0            0
   ------------------------------------------------------------------------------
```

NOTE: The first example shows the field sizes for the maintenance action data elements. The second example is actual C-5A data. The third example shows a summary of maintenance actions from actual C-5A data.

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